Published in final edited form as:

J Ethn Subst Abuse. 2010 July ; 9(3): 153–172. doi:10.1080/15332640.2010.500580.

A Review of the Literature on Native Hawaiian Youth and Drug Use: Implications for Research and Practice

Christopher Edwards

Willow Springs Center, Reno, NV

Danielle Giroux

University of Alaska Anchorage

Scott K. Okamoto

Hawai'i Pacific University

Abstract

This paper provides a comprehensive review of the recent literature on Native Hawaiian youth and substance use. Eight-hundred and twelve potential articles pertaining to Native Hawaiian youth and substance use published between 1995 to May 2009 were identified through an exhaustive literature search. The total number of articles was reduced to 32 articles, which were systematically coded and content analyzed. The findings indicated that the majority of studies focused on epidemiology, with relatively few of them focused on causal factors/etiology and systematic program development or evaluation. Gender differences in drug use were highlighted in several studies. Implications for culturally-tailored interventions and future research are discussed.

Keywords

Hawaiian; youth; drug use; culture; literature review

Alcohol and drug use are among the most pressing problems facing Hawai'i and have been the cause of major concern for the past ten years (Austin, 2004). In a recent study, stakeholders representing eight out of eleven rural communities rated drug use as the number one health concern within their communities (Withy, Andaya, Mikami, & Yamada, 2007). In addition, Hawaiian adolescents have exhibited higher rates of alcohol, tobacco, and other drug (ATOD) use when compared with other ethnic groups in Hawai'i (Pearson, 2004; Hishinuma, Nishimura, Miyamoto, & Johnson, 2000), and as a result experienced more ATOD-associated problems (Hishinuma et al., 2000; Ramisetty-Mikler, Caetano, Goebert, & Nishimura, 2004). Hawaiian youth experience an early age of onset and high lifetime use rates for alcohol, tobacco and other drugs, with a dramatic increase of alcohol use between grades 6 and 10 (Hishinuma et al., 2000).

Despite these alarming statistics, several recent studies have suggested that the scientific literature has not reflected the clear need for substance abuse research within the Native Hawaiian population. For example, Mokuau, Garlock-Tuiali'i, and Lee (2008) recently published a review of the periodical literature focused on Native Hawaiians and other Pacific

Islanders (NHOPIs), and found a total of only 32 articles focused on the population in 23 social work journals published from 1995–2004. This represented only 0.64 percent of more than 5,000 articles published in the reviewed journals. Okamoto (2010) elucidates this point by examining the journalistic response to research focused on Hawaiian youth and drug use. He concluded that, despite priorities occurring at the federal level, Hawaiian health and health disparities may not be a topic of importance or relevance for many peer-reviewed journal outlets. Nonetheless, although some literature establishes a base of information about this community, refinement and expansion of this knowledge is still needed (Mokuau et al., 2008). This is necessary in order to address the large substance use disparities which exist between Native Hawaiians and other ethnic groups within the U.S.

There have been literature reviews regarding Native Hawaiian substance use in the past; however, the majority of these reports are outdated (e.g., Ahern, 1989; Office of the Governor, 1974–75; Voss, 1961). These reports indicated that health disparities related to alcohol use existed within the Native Hawaiian population, and that additional research pertaining to the prevalence of alcohol use within this population was needed. Despite these initial reviews, there has been little tracking of the scientific progress over the past 20 years related to Native Hawaiians and drug use. Further, no literature reviews have been published with a specific focus on Native Hawaiian youth. This gap in information suggests that little headway has been made to understand substance use within the Native Hawaiian community over the last several decades.

This article will bridge the gap in the literature focused on Native Hawaiian youth and drug use and provide tracking for the scientific progress that has been made in this area over the past 14 years. This article will provide a comprehensive review of the recent literature (from 1995 to May 2009) pertaining specifically to substance use within this population. The aim of this article is to add to the existing body of knowledge by comparing and contrasting emergent themes within this body of literature as well as comparing the locally generated, community-based research with the peer-reviewed literature. The overall outcome of this article will be an updated review of the scientific literature for Native Hawaiian youth, which may have implications for substance abuse interventions and research with other Pacific Islander and/or indigenous youth populations. This paper will conclude with implications for future research and practice with this population.

Who are Native Hawaiians?

Native Hawaiians are defined as the descendants of the indigenous people who inhabited the Hawaiian Islands prior to 1778, the date that Captain Cook first encountered the Hawaiian Islands (Andrade et al., 1994). Within this paper, Native Hawaiians will hereafter be referred to as Hawaiians. Hawaiians are not resident nationals of Hawai'i or immigrants that have moved to Hawai'i. The term Hawaiian strictly refers to those individuals who have heritage that pre-dates the arrival of Captain Cook to the Hawaiian Islands. After Captain Cook's encounter with the Hawaiian Islands, depopulation and the spread of disease began among the Hawaiian people (Mokuau & Matsuoka, 1995), with the earliest medical accounts in this post contact era depicting virtual genocide of the Hawaiian people (Daws, 1974).

Following the spread of disease in the late 1700's, missionaries immigrated to Hawai'i and began to establish churches and schools. By 1820, the missionaries had imposed an array of religious rules that discontinued traditional sexual practices, various art forms, such as the hula, and the Hawaiian language. Mokuau and Matsuoka (1995) state that "the Hawaiian worldview that permeated every aspect of daily life was replaced by a fundamentally Christian perspective" (p. 466). Mokuau and Matsuoka also point out that the descendants of the original missionary families eventually dropped their religious goals in favor of business pursuits.

These business pursuits facilitated the development of large scale farms to grow pineapple and sugar cane. When faced with labor shortages, the land owners imported thousands of indentured workers from Asia. Thus, the majority of Hawaiians became dispossessed of land resources while foreign land ownership increased (Dudley & Agard, 1990). Subsequently, Hawaiians became an increasingly displaced population (Merry, 2000).

During the period from 1825 to 1850, the Kingdom of Hawai'i was transformed from a system of government based on sacred laws to one based on Anglo-American common laws, a written constitution, and an elected legislature. In practice, this shift to common legislature "was increasingly vested in the hands of men of property, [who were] often resident and naturalized foreigners" (Merry, 2000, p. 35). The loss of power and conflicting value systems may partially explain the low socioeconomic status and the increasing health disparities seen within the Hawaiian population. Subsequently, due to past colonization within Hawai'i, it is unlikely that the rubric "Asian Pacific Islander" reflects the unique sociohistorical characteristics of Hawaiians. Several studies have argued this point, and suggest that Hawaiians should have a body of research distinct from Asians and/or other Pacific Islander groups (Mayeda & Okamoto, 2002; Mayeda, Hishinuma, Nishimura, Garcia-Santiago, & Mark, 2006). Further supporting this assertion, federal efforts are currently underway to recognize Hawaiians as a distinct indigenous group within the Pacific (H.R. 505, 2007).

Community Generated Research on Hawaiian Youth Substance Use

Community generated research pertaining to Hawaiian youth indicates that they are experiencing substance use at a higher rate than youth of other ethnic backgrounds. For example, Pearson (2004) reported higher prevalence rates for almost all substances for Hawaiian students at lower grade levels, compared with their non-Hawaiian counterparts. Further, at the higher grade levels, prevalence rates were found to be equally high among Hawaiian and White students, and were substantially higher than students from other ethnic groups. Pearson also found that alcohol, marijuana, and illicit drug use rates had been highest among Hawaiians in all grades from 1996–2003, with Japanese, Chinese and Filipino students reporting the lowest use rates of all ethnic groups in Hawai'i. Klinge and Miller (1999) similarly published a community report comparing drug use rates of Hawaiian students to those reported for all other adolescents statewide within Hawai'i. This report found that 7.7% of Hawaiian students (compared with 4.9% of non-Hawaiian students) were using marijuana, 2.3% (compared with 1.8%) were using methamphetamines, and 2.4% (compared with 2.0%) were using cocaine. Based on these community reports, Hawaiian students appear to be at higher risk for ATOD use when compared with other Asian and Pacific Islander populations. Locally generated findings further indicate that Hawaiian youths' disparate rates of drug use appear to persist into adulthood. The National Survey on Drug Use and Health asked people 12 and older to report their illicit drug use habits within the past 30 days. This report found that 12.5% of Hawaiians had used illicit drugs within the past 30 days, compared with 8.1% of whites, and 3.1% of Asians (Office of Applied Studies, 2007a). While locally generated, community based research has indicated substantially higher drug use rates for Hawaiians, it is not clear is how this information has been corroborated by the peer-reviewed literature. Therefore, we conducted a systematic review of the peer-reviewed literature regarding Hawaiian youth and substance use in part to explore these similarities and differences.

Method

A computerized search of four separate databases was conducted to find peer-reviewed journal articles pertaining to Hawaiian youth and drug use between 1995 and May of 2009. A combination of the following keywords were used to search for published articles in *PsychInfo*, *PubMed*, *Academic Search Premier*, and *The Social Sciences Index*:

“Hawaiian” (including related terminology that could incorporate Hawaiians such as “Hawaiians,” “Pacific Islander,” “Asian Pacific Islander”), “adolescents” (including “youth,” “minor,” and “teen”), “substance abuse” (including related terminology for substance abuse such as “drug,” “drug use,” “smoking,” “alcohol,” “marijuana”). Our initial search of the four databases yielded a total of 1,140 articles. Several of these articles were overlapping between databases. Eliminating redundant articles across databases yielded a final number of 812 unique, non-overlapping articles. In addition to using library databases, specific journals which have published articles on youth ethnic groups and drug use were also examined over the 14-year time period for potential articles (i.e., *The Journal of Ethnicity in Substance Abuse*, *The Journal of Drug Education*). This type of search yielded no new or unique articles outside of the 812 articles elicited from the four library databases.

Because the search yielded articles published in non-peer-reviewed literature, several articles were automatically excluded for review, bringing the total number of reviewed articles to 802. Initially, abstracts were read to see if the article mentioned drug use as a primary or secondary finding and included Hawaiian youth as part of their study. If so, the full contents of articles were screened to ensure the sample consisted of Hawaiian youth and included findings for substance use that were specific to the Hawaiian population. The inclusionary criteria for this study were that articles (1) reported findings for a youth sample (i.e., younger than 18 years old), (2) included alcohol, tobacco, marijuana, or other substances as a primary or secondary dependent variable, and (3) included findings pertinent to Hawaiian youth as a predominant focus of their analysis. Articles did not meet criteria #3 if they indicated that Hawaiian youth were included in their sample, but did not specify the number of Hawaiian youth or report any findings specific to the population. For example, articles which included Hawaiian youth in their sample, but reported findings focused only for “Asian Pacific Islander youth” or “Pacific Islander Youth” did not meet criteria #3 and were therefore not included in the analysis. After examining and evaluating the 802 articles based on the inclusionary criteria, a total of 28 articles were identified as pertinent to this review.

The initial list of 28 articles was then validated through review and/or discussion with faculty within two departments from two large university systems in the state of Hawai‘i. Faculty within these departments were the generator of the majority of research focused on Native Hawaiian youth and drug use over the past 20 years, and functioned as a validity check for the inclusiveness of the literature search. Through this validity check, it became evident that several relevant articles were buried within other topic areas (e.g., suicide, school misconduct, teen dating violence) and were not initially revealed by using our search terms. When results focused on Hawaiian youth and drug use were buried within articles focused on other topic areas, we determined whether these articles should be included based on the details described in their results section. For example, one article reported that substance use was a correlate to suicide, but did not include any substance-use specific results. This article did not meet criteria #2, and thus was not included in the analysis. Conversely, other articles (e.g., Else, Andrade, & Nahulu, 2007) included substance use as a correlate to suicide, but also reported substance use-specific results for Hawaiian youth, and were therefore included as part of the analysis. The validity check yielded four articles that met the inclusionary criteria and were not part of the initial search of the library databases.

Thus, a total of 32 articles were analyzed as part of this study. Once selected, each article was coded based on the sample size, analytic approach, ethnic composition of the sample, location and type of study, substances examined in the study, age, grade, and gender of the sample, and primary and secondary measures used in the study. Each article was assigned a primary and secondary coder. Discrepancies between coders were documented and discussed to ensure consistent and accurate inclusion.

Results

A total of 32 peer-reviewed articles met the criteria for inclusion in this review and are referenced in Table 1. Of these 32 articles, the majority were epidemiological in nature (47%), followed by those that were etiological/causal (13%), those that focused on needs assessments or program evaluations (13% each), those that reviewed the literature (9%), and those that were correlational or focused on test development and validation (3% each).

In terms of analytic strategy, 38% of the studies compared Hawaiian youth with other specific ethnic youth comparison groups (e.g., Caucasian, Japanese, or Filipino youth), followed by studies comparing Hawaiian youth with a non-specified, non-Hawaiian sample (31%). Nineteen percent of the studies either utilized or summarized a variety of analytic strategies (i.e., needs assessments or literature reviews). Finally, 13% of the studies examined only within-group differences of Hawaiian youth.

In terms of drug use measurement, the Hawaiian High School Health Survey (HHSHS) was the primary measure used in 44% of the studies. Qualitative methods (e.g., focus groups, individual interviews) were used in 19% of the studies. The Hawaiian Youth Risk Behavior Survey (HYRBS) was the primary measure in 13% of the studies. Other measurement tools (e.g., The Government Performance and Results Act [GPRA] survey, Smoking Prevention Launch among Students in Hawai'i [SPLASH]) were used in 18% of the studies. Finally, 6% of the studies did not report utilizing any specific form of measurement.

Summary of Findings across Studies

The epidemiological studies consistently found that Hawaiian youth experienced ATOD use at significantly higher rates than other ethnic groups. For example, Wong, Klinge, and Price (2004) found that 46% of Hawaiian youth reported using alcohol within the past 30 days compared to 19–29% for Asian American youth. Similarly, Nishimura, Goebert, Ramisetty-Mikler, and Caetano (2005) found that 36% of Hawaiian high school students engaged in binge drinking behavior compared to 31% of Caucasian students and 19% of other Asian Pacific Islander youth. Studies indicated that alcohol and tobacco are the most commonly abused substances by Hawaiian youth (Goebert et al., 2004; Makini et al., 2001; Nishimura, Hishinuma, Else, Goebert, & Andrade, 2005; Wong et al., 2004).

In addition to having higher ATOD rates than other ethnic groups, research indicates that Hawaiian youth were also more likely to suffer from adverse behavioral and/or health outcomes correlated with their substance use. Hawaiian youth had significantly higher rates of depression, suicidality, anxiety, conduct disorder, unsafe sexual practices with multiple partners, and were more likely to experience violence in multiple settings in conjunction with drug use (Andrade et al., 2006; Hishinuma et al., 2005; Nishimura, Goebert, et al., 2005; Ramisetty-Mikler, Goebert, Nishimura, & Caetano, 2006; Yuen et al., 1996; Yuen, Nahulu, Hishinuma, & Miyamoto, 2000). For example, Goebert et al. (2004) found binge drinking behavior to be significantly higher for Hawaiian versus other Asian Pacific Islander youth and that this behavior increased the likelihood of violence as much as ten-fold. Goebert et al. also found that Hawaiian youth were significantly more likely to have fought on school property than Caucasian youth.

The etiological/causal studies found that family influence was a major risk and/or a protective factor for the youth. Experiencing more family adversity and family criminality is the best predictor of conduct infractions and school suspensions for Hawaiian youth. Goebert et al. (2000) found that Hawaiian adolescents experienced significantly more family adversity than their non-Hawaiian counterparts, and that adversity related to the substance use of a family member strongly influenced adolescent use. These findings are corroborated by recent

qualitative research, which suggested that familial drug use intensifies both risk and protection related to drug use of Hawaiian youth, particularly for those youth residing in rural communities (Okamoto, Helm, Po'a-Kekuawela, Nebre, & Chin, 2009).

According to published needs assessments, ATOD use was perceived as a pervasive problem by rural communities in Hawai'i (Withy et al., 2007). For example, Mitschke Matsunaga, Loeb, Tatafu, and Robinett (2008) found through qualitative methods that Hawaiian youth conveyed a sense of feeling surrounded by tobacco related products at home, in their neighborhoods, and within their school settings. In particular, family has been found to play a major role in influencing the youth's choice to smoke and use alcohol (Glanz, Mau, Steffen, Maskarinec, & Arriola, 2007; Makini et al., 2001). There has also been a growing concern by the community due to the shift to hard drug use like "ice" (methamphetamine) and heroin (Waitzfelder, Engel, & Gilbert, 1998).

Four articles focused on the development and/or evaluation of culturally specific interventions for Hawaiian youth, and, since all of them had been published between 2007 and 2009, they were very preliminary in nature. Further, evaluated programs, such as *Hui Malama o ke Kai* (Akeo et al. 2008), were not established long enough and/or did not have enough data to provide unequivocal findings. The programs described in the studies began as grass roots initiatives, were all based on Hawaiian values, and were rooted in traditional Hawaiian culture. However, these programs appeared to lack an empirical foundation, and seemed disconnected from much of the current published research focused on Hawaiian youth and drug use.

Gender Specific Findings

Gender differences in substance use of Hawaiian youth were found in 59% of the studies. Female Hawaiian youth were reported to have significantly higher gateway drug use rates than males in several studies (Mayeda et al., 2006; Nishimura, Goebert, et al., 2005), however; these rates converged as youth approached the 12th grade (Nishimura, Hishinuma, et al., 2005). In addition, Hawaiian female youth were also more likely than males to have experienced adverse behavioral and/or health consequences related to substance use. For example, compared to their male counterparts, multiple studies found that Hawaiian girls displayed higher rates of depression and aggression, unsafe sexual practices, school misconduct, and suicidal attempts, all of which were linked to substance use (Else et al., 2007; Else, Hishinuma, Goebert, Nishimura, & Baker, 2008; Makini et al., 1996; Nishimura, Goebert, et al., 2005; Mayeda et al., 2006; Hishinuma et al., 2006).

Conversely, male Hawaiian youth were found to have more lifetime sexual partners and were more likely to use substances during their last intercourse (Ramisetty-Mikler et al., 2004). As expected, males experienced more physical violence, such as getting into fights, than females; however, Hawaiian youth are experiencing violence at much higher rates overall (Goebert et al., 2004). Over 45% of Hawaiian males have been in a fight within the past year, which indicates that Hawaiian boys have the highest rates of school misconduct (Hishinuma et al., 2005). Substance abuse was the best indicator for misconduct and binge drinking increased the likelihood of experiencing violent behavior (Goebert et al., 2004). Of the studies that did report gender differences, it is worth noting that almost 79% of them had a sample of more females than males. Further, Hishinuma et al. (2006) stated that male participants who dropped out of their study had significantly lower GPA's, and higher rates of absences, suspensions, and school infractions, suggesting that some of the highest risk male youth in their sampling frame were not reflected in their findings. This may have skewed findings related to gender differences.

Discussion

This study examined the peer-reviewed literature focused on Hawaiian youth and drug use over the past 14 years. Consistent with locally generated reports, the peer-reviewed literature indicates high drug use rates for these youth in multiple studies. However, none of the locally generated reports, and very few of the peer-reviewed studies, focused on the specific causes of substance abuse for Hawaiian youth. Coupled with the documented adverse psychosocial and behavioral outcomes related to drug use for these youth (e.g., mental health issues, fighting, misconduct, depression, and anxiety), it is clear that more substance abuse research is needed focused on this population.

The peer reviewed literature primarily focuses on gateway drug use (e.g., alcohol, cigarette, and marijuana use) for Hawaiian youth. At some point, however, there is a transition from the gateway drugs to other drugs like “ice” and heroin for some Hawaiian youth, which is not reflected in this body of research. Peer-reviewed articles are not addressing the “harder” drugs that community reports and members are reporting as an increasing issue (Withy et al., 2007). Future peer-reviewed research should address the shift from gateway drugs to harder drugs. This would have implications for understanding the developmental progression of drug addiction for Hawaiian youth, and can inform interventions for these youth.

Gender Differences

Overall, the research suggests that female Hawaiian youth are at greater risk than their male counterparts for a variety of drug-related adverse outcomes (e.g., internalizing and externalizing disorders, suicidality). To date, however, there are no theories to explain this phenomenon, because few etiological studies have been conducted. Theories with other indigenous youth populations may offer some explanation for the increased risk to Hawaiian girls. For example, Dixon Rayle et al. (2006) found that American Indian girls received significantly more drug offers from cousins and friends compared to American Indian boys, and also found it significantly more difficult to refuse drugs from all offerer sources. Other studies have described how these types of offers impact decisions to use drugs for Native girls (Alexander, Allen, Crawford, & McCormick, 1999). It is likely that female Hawaiian youth may also experience more drug offers and/or may be targeted by older teens or adults as recipients of drug offers. Hawaiian girls may also find it more difficult to refuse drug offers than their male counterparts. Future research should explore gender differences in drug offers for Hawaiian youth, in order to examine these hypotheses.

Female Hawaiian youth have been found to use drugs at higher rates than males; however, these rates begin to approach each other over time. This is consistent with adult studies, which suggest that Hawaiian males eventually surpass females in their rates of use (Office of Applied Studies, 2007b). As youth age, substance use may interact with gender identity, leading to this shift in substance use rates as youth mature. Helm et al. (2008) suggest that younger Hawaiian girls may be initiated into drug use by older adolescent males, partially accounting for higher drug use rates for younger girls. However, as younger Hawaiian boys age, they may become increasingly exposed to drug use as they enter high school, and their rate of use begins to increase rapidly. The reasons for this shift in drug use rates has yet to be examined, but could shed light on culturally appropriate and gender specific ways to tailor treatment or prevention programs for these youth.

Finally, research identified specific behavioral consequences as a result of drug use for Hawaiian boys, such as unsafe sexual practices and violence. These findings have implications for culturally specific dating violence prevention programs. They suggest that, in addition to content on sexual health and interpersonal violence, these programs should incorporate content related to drug use and its role in decision-making within dating situations for Hawaiian youth.

The research also suggests that violence prevention and anger management programs may need to be both culturally specific and tailored to the unique psychosocial issues of Hawaiian boys.

Implications for Practice

To date, there have been few published program evaluations specific to substance use of Hawaiian youth, and those that exist are preliminary in nature. Although this has left a large gap in the practice literature, the few etiological studies suggest avenues for drug prevention interventions with this population. For example, the importance of the Hawaiian family ('ohana) structure has been identified as influential in decisions to use or resist drugs for Hawaiian youth (Helm et al., 2008; Okamoto et al., 2009), but no published programs to date seem to include the family as an integral part of treatment or prevention. This structure could be integrated in both the content and delivery of the programs. School-based prevention programs could train Hawaiian youth on culturally acceptable ways to resist drug offers from family members, while community-based programs might provide interventions with multiple families that help to strengthen the community as a whole. In this way, the ability to resist substances within the Hawaiian family structure becomes a cultural asset that enables youth to succeed in contemporary society (Akeo et al., 2008).

Another aspect of the published program evaluations for Hawaiian youth, is that methods of evaluation appear to be developed post hoc, or as an afterthought to the development of the programs. While most of these programs have been rooted in Hawaiian values and beliefs, they also appear to have been developed from grassroots efforts that are not fully informed by the scientific literature prior to creation. This may account for their limited efficacy in curbing drug use for these youth. Future programs should attempt to bridge the gap between culturally specific, grassroots efforts toward drug prevention that are valued and accepted by Hawaiian communities with the findings from the scientific literature.

Implications for Future Research

The recommendations of historical literature reviews (e.g., Voss, 1961) have been to provide more information about epidemiology of drug use for Hawaiians. Based on this review of the literature, these goals appear to have been met for at least the youth population, thus a paradigmatic shift in research may need to happen. More research is needed in the areas of etiology/causal factors related to drug use, as well as research focusing on within-group differences for Hawaiian youth. This review indicates that there are very few of either types of these studies, and they are important in informing drug prevention and treatment for these youth. Understanding the culturally specific causal factors related to drug use has practical application for the development of interventions for these youth. To date, there is a limited understanding related to the role of family and gender in drug use for Hawaiian youth. More drug use research in these areas are needed, as well as studies focused on regional differences (e.g., issues specific to rural versus urban Hawaiian youth, differences for youth from different islands), cultural values, practices, and beliefs, and spirituality.

Limitations

Because our findings are limited to what has been published to date, the primary limitation of this study is the relative lack of information available on drug use and Hawaiian youth. Multiple articles identified for potential review had Hawaiian youth as part of the sample, but merged them with other ethnic groups and presented aggregated findings. Based on past recommendations (Mokuau et al., 2008), we decided to eliminate these studies from our analysis because they did not provide Hawaiian-specific findings; however, this methodological decision may have influenced the overall results of the literature review. A limitation within the epidemiological literature was the overrepresentation of certain measurement tools and investigators. For example, over 40% of the studies used the Hawaiian

High Schools Health Survey (HSHS) to measure drug use, and these studies were conducted by a single set of researchers. This may have biased the overall findings from the studies analyzed in this review. It further suggests that more studies from a variety of researchers are necessary to substantiate or expand upon current research findings.

Conclusions

The research on Hawaiian youth and drug use has clearly established that these youth are at much greater risk than their non-Hawaiian counterparts for substance use/abuse and concomitant social and behavioral problems. Unfortunately, however, the body of published research focused on drug use/abuse has not met the needs for this population. While a few studies have examined causal factors and within-group differences related to drug use, there are major gaps in the research which have prevented the movement from research to practice. The existing Hawaiian-specific programs focused on drug use do not appear to be informed by the causal literature, nor have been designed for rigorous scientific evaluation. As a result, there are few programs specific to drug use of Hawaiian youth that have been informed by both theory/research and culture. Future drug prevention programs should focus on bridging these areas in order to provide the most effective drug and alcohol interventions for these youth.

Acknowledgments

This study was supported by funding from the National Institutes of Health/National Institute on Drug Abuse (K01 DA019884) and was completed for partial fulfillment of the requirements of the Master in Social Work program at Hawai'i Pacific University. The authors would like to acknowledge the support of the Asian Pacific Islander Youth Violence Prevention Center and Dr. Susana Helm in the completion of this study.

References

References marked with an asterisk indicate studies included in the literature review.

- Ahern, FM. Alcohol use and abuse among four ethnic groups In Hawaii: Native Hawaiians, Japanese, Filipinos, and Caucasians. In: Spiegler, D.; Tate, D.; Aitken, S.; Christian, C., editors. Alcohol Abuse among U.S. Ethnic Minorities. National Institute on Alcohol Abuse and Alcoholism; Rockville, MD: 1989. p. 315-328.
- Akeo NP, Bunyan ES, Burgess KN, Eckart DR, Evensen SL, Hirose-Wong SM, et al. Hui Malama o ke Kai: Mobilizing to prevent youth violence and substance abuse with passion, common goals, and culture. *American Journal of Preventive Medicine* 2008;34:67-71.
- Alexander CS, Allen P, Crawford MA, McCormick LK. Taking a first puff: Cigarette smoking experiences among ethnically diverse adolescents. *Ethnicity & Health* 1999;4(4):245-257. [PubMed: 10705562]
- Andrade NN, Hishinuma ES, McDermott JF, Johnson RC, Goebert DA, Makini GK, et al. The national center on indigenous Hawaiian behavior health study of prevalence of psychiatric disorders in Native Hawaiian youth. *Journal by the American Academy of Child and Adolescent Psychiatry* 2006;45:26-36.
- Andrade NN, Johnson RC, Edman J, Danko GP, Nahulu LB, Makini GK, et al. Non-traditional and traditional treatment of Hawaiian and non-Hawaiian adolescents. *Hawai'i Medical Journal* 1994;53:344-374.
- Austin AA. Alcohol, tobacco, other drug use, and violent behavior among Native Hawaiians: Ethnic pride and resilience. *Substance Use and Misuse* 2004;39:721-746. [PubMed: 15202806]
- Daws, G. Shoal of time: A history of the Hawaiian islands. University Press of Hawai'i; Honolulu: 1974.
- Dixon Rayle A, Kulis S, Okamoto SK, Tann SS, LeCroy CW, Dustman P, et al. Who is offering and how often? Gender differences in drug offers among American Indian adolescents of the Southwest. *The Journal of Early Adolescence* 2006;26(3):296-317.
- Dudley, MK.; Agard, KK. A call for Hawaiian sovereignty. Na Kane O Ka Malo Press; Honolulu: 1990.

- Else IRN, Andrade NN, Nahulu LB. Suicide and suicidal-related behaviors among indigenous Pacific Islanders in the United States. *Death Studies* 2007;31:479–501. [PubMed: 17554840]
- Else IRN, Hishinuma ES, Goebert DA, Nishimura ST, Baker S. Predicting cigarette use among Hawai'i adolescents. *Social Psychology International* 2008;29:230–247.
- Glanz K, Maskarinec G, Carlin L. Ethnicity, sense of coherence, and tobacco use among adolescents. *Annals of Behavioral Medicine* 2005;29:192–199. [PubMed: 15946113]
- Glanz K, Mau M, Steffen A, Maskarinec G, Arriola KJ. Tobacco use among Native Hawaiian middle school students: Its prevalence, correlates and implications. *Ethnicity & Health* 2007;12:227–244. [PubMed: 17454098]
- Goebert DA, Caetano R, Nishimura ST, Ramisetty-Mikler S. Alcohol use and violence among adolescents in a multiethnic setting. *Journal of School Violence* 2004;3:77–91.
- Goebert D, Nahulu L, Hishinuma E, Bell C, Yuen N, Carlton B, et al. Cumulative effect of family environment on psychiatric symptomatology among multiethnic adolescents. *Journal of Adolescent Health* 2000;27:34–42. [PubMed: 10867350]
- Helm S, Okamoto SK, Medeiros H, Chin CIH, Kawano KN, Po'a-Kekuawela K, et al. Participatory drug prevention research in rural Hawai'i with Native Hawaiian middle school students. *Progress in Community Health Partnerships* 2008;2:307–313. [PubMed: 19696900]
- Hishinuma ES, Else IRN, Chang JY, Goebert DA, Nishimura ST, Choi-Misailidis S, et al. Substance use as a robust correlate of school outcome measures for ethnically diverse adolescents of Asian/Pacific Islander ancestry. *School Psychology Quarterly* 2006;21:286–322.
- Hishinuma ES, Johnson RC, Kim P, Nishimura ST, Makini GK, Andrade NN, et al. Prevalence and correlates of misconduct among ethnically diverse adolescents of Native Hawaiian/Part-Hawaiian and Non-Hawaiian ancestry. *International Journal of Psychiatry* 2005;51:242–258.
- Hishinuma ES, Nishimura ST, Miyamoto RH, Johnson RC. Alcohol use in Hawaii. *Hawai'i Medical Journal* 2000;59:329–335.
- Kim RJ, Jackson DS. Outcome evaluation findings of a Hawaiian culture-based adolescent substance abuse treatment program. *Psychological Services* 2009;6:43–55.
- Kim R, Withy K, Jackson D, Sekaguchi L. Initial assessment of a culturally tailored substance abuse prevention program and applicability of the risk and protective model for adolescents of Hawai'i. *Hawai'i Medical Journal* 2007;66:118–123. [PubMed: 17557713]
- Kim SS, Ziedonis D, Chen K. Tobacco use and dependence in Asian American and Pacific Islander adolescents: A review of the literature. *Journal of Ethnicity in Substance Abuse* 2007;6:113–142. [PubMed: 19842309]
- Kingle, R.; Miller, MD. The 1998 Hawaii Student Alcohol and Drug Use Survey (1991–1998): Hawaii Adolescent Treatment Needs Assessment. Speech Department, University of Hawai'i at Mānoa, and the Alcohol & Drug Abuse Division (ADAD), Department of Health, State of Hawai'i; Honolulu, HI: 1999.
- Makini GK, Hishinuma ES, Kim PS, Carlton BS, Miyamoto RH, Nahulu LB, et al. Risk and protective factors related to Native Hawaiian adolescent alcohol use. *Alcohol and Alcoholism* 2001;36:235–242. [PubMed: 11373261]
- Makini GK, McDermott JF, Andrade NN, Danko GP, Nahulu LB, Nordquist CR, et al. Psychiatric symptoms of Hawaiian adolescents. *Cultural Diversity and Mental Health* 1996;2:183–191. [PubMed: 9231526]
- Mayeda DT, Hishinuma ES, Nishimura ST, Garcia-Santiago O, Mark GY. Asian/Pacific Islander youth violence prevention center: Interpersonal violence and deviant behaviors among youth in Hawai'i. *Journal of Adolescent Health* 2006;39:1–11. [PubMed: 16781953]
- Mayeda DT, Okamoto SK. Challenging the “Asian Pacific American” rubric: Social constructions of ethnic identity among Samoan youth in Hawai'i. *Journal of Poverty* 2002;6(4):43–62.
- Merry, SE. *Colonizing Hawai'i: The Cultural Power of Law*. Princeton University Press; Princeton, NJ: 2000.
- Mitschke DB, Matsunaga DS, Loeb K, Tatafu E, Robinett H. Multi-ethnic adolescents' attitudes toward smoking: A focus group analysis. *American Journal of Health Promotion* 2007;22:393–399. [PubMed: 18677879]

- Mokuau N, Matsuoka J. Turbulence among a Native People: Social Work Practice with Hawaiians. *Social Work* 1995;40(4):465–472.
- Mokuau N, Garlock-Tuiali'i J, Lee P. Has social work met its commitment to Native Hawaiians and other Pacific Islanders? A review of the periodical literature. *Social Work* 2008;53:115–121. [PubMed: 18595445]
- Native Hawaiian Reorganization Act of 2007. H.R. 505, 110th Cong., 1st Sess.; 2007.
- Nahulu LB, McDermott JF, Andrade NN, Danko GP, Makini GK, Johnson RC, et al. Psychosocial risk and protective influences in Hawaiian adolescent psychopathology. *Cultural Diversity and Mental Health* 1996;2:107–114. [PubMed: 9225566]
- Nishimura ST, Goebert DA, Ramisetty-Mikler S, Caetano R. Adolescent alcohol use and suicide indicators among adolescents in Hawaii. *Culturally Diversity and Ethnic Minority Psychology* 2005;11:309–320.
- Nishimura ST, Hishinuma ES, Else IRN, Goebert DA, Andrade NN. Ethnicity and adolescent substance use. *Cultural Diversity and Ethnic Minority Psychology* 2005;11:239–258. [PubMed: 16117591]
- Nishimura ST, Hishinuma ES, Miyamoto RH, Goebert DA, Johnson RC, Yuen NYC, et al. Prediction of DISC substance abuse and dependency for ethnically diverse adolescents. *Journal of Substance Abuse* 2001;13:597–607. [PubMed: 11775085]
- Okamoto SK, Helm S, Po'a-Kekuawela K, Chin CIH, Nebre LH. Community risk and resiliency factors related to drug use of rural Native Hawaiian youth: An exploratory study. *Journal of Ethnicity in Substance Abuse* 2009;8:1–15. [PubMed: 19266371]
- Okamoto SK. Academic marginalization? The journalistic response to social work research on Native Hawaiian youth. *Social Work* 2010;55(1):93–94. [PubMed: 20069946]
- Office of Applied Studies. Illicit drug use, by race/ethnicity, in metropolitan and non-metropolitan counties: 2004–2005. Substance Abuse and Mental Health Services Administration; Rockville, MD: 2007a. Retrieved on July 1, 2009 from <http://www.oas.samhsa.gov/2k7/popDensity/popDensity.pdf>
- Office of Applied Studies. Gender differences in alcohol use or alcohol dependence and abuse: 2004–2005. Substance Abuse and Mental Health Services Administration; Rockville, MD: 2007b. Retrieved on August 10, 2009 from <http://www.oas.samhsa.gov/2k7/AlcGender/AlcGender.pdf>
- Office of the Governor. The Hawaii State Plan on Alcoholism. Honolulu, HI: State of Hawai'i, Office of the Governor; 1974–1975.
- Pearson, RS. Ka Leo o Nā Keiki: The 2003 Hawaii student alcohol, tobacco, and other drug use study (1987–2003). Hawai'i Department of Health, Alcohol and Drug Abuse Division; Honolulu, HI: 2004.
- Ramisetty-Mikler S, Caetano R, Goebert D, Nishimura S. Ethnic variation in drinking, and sexual behavior among adolescents in Hawai'i. *Journal of School Health* 2004;74:16–22. [PubMed: 15022371]
- Ramisetty-Mikler S, Goebert D, Nishimura S, Caetano R. Dating violence victimization: Associated drinking and sexual risk behavior of Asian, Native Hawaiian, and Caucasian high school students in Hawaii. *Journal of School Health* 2006;76:423–428. [PubMed: 16978166]
- Voss, E. An Analysis of Alcohol Consumption Patterns on Oahu. Economic Research Center of the University of Hawai'i; Honolulu, HI: 1961.
- Waitzfelder BE, Engel CC, Gilbert FI. Substance abuse in Hawai'i: perspectives of key local human organizations. *Substance Abuse* 1998;19:7–22. [PubMed: 12511803]
- Withy KM, Andaya JM, Mikami JS, Yamada S. Assessing health disparities in rural Hawaii using the Hoshin facilitation method. *The Journal of Rural Health* 2007;23:84–88. [PubMed: 17300483]
- Withy KM, Lee W, Renger RF. A practical framework for evaluating a culturally tailored adolescent substance abuse treatment programme in Molokai, Hawaii. *Ethnicity & Health* 2007;12:483–496. [PubMed: 17978945]
- Wong MM, Klinge RS, Price RK. Alcohol, tobacco, and other drug use among Asian American and Pacific Islander adolescents in California and Hawaii. *Addictive Behaviors* 2004;29:127–141. [PubMed: 14667425]
- Yuen N, Andrade N, Nahulu L, Makini G, McDermott JF, Danko G, et al. The rate and characteristics of suicide attempters in the Native Hawaiian adolescent population. *Suicide and Life Threatening Behavior* 1996;26:27–36. [PubMed: 9173607]

Yuen NYC, Nahulu LB, Hishinuma ES, Miyamoto RH. Cultural identification and attempted suicide in Native Hawaiian adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 2000;39:360–367. [PubMed: 10714057]

Figure 1.
Type of study

Figure 2.

Primary measures utilized in study

Note. HHS = Hawaiian High Schools Health Survey, Qualitative measures were individual interviews and focus groups, HYRBS = Hawaiian Youth Risk Behavior Survey, SPLASH = Smoking Prevention Launch among Students in Hawai'i.

Table 1

Study Description.

Study	N size	Ethnicity	Drug	Design	Grade (Age)	Gender
Akeo et al. (2008)	350	NH	Substance use (unspecified)	Program evaluation	5th–6th	Did not specify
Andrade et al. (2006)	619	NH, NNH	Alcohol, Marijuana, Other Drug	Exploratory	9th–12th	45.1% = male 54.9% = female
Else et al. (2007)	4,182	NH, CAU, JPN, FIL, OTH	Substance use (unspecified)	Correlational	9th–12th	47.7% = male 52.3% = female
Else et al. (2008)	7,317	PUR, TON, SAM, MFIL, HIS, AFR, KOR, MNH, CAU, JPN, NH, FIL, POR, CHN	Tobacco	Quasi-experimental	9th–12th (13–21)	Did not specify
Glanz et al. (2005)	3,438	CHN, JPN, PI, NH, KOR, AFR, HIS, OTH	Tobacco (Cigarettes)	Correlational	7th	48% = male 52% = female
Glanz et al. (2007)	1,695	NH, PNH	Tobacco (Cigarettes)	Correlational	7th–8th (11–14)	49.8% = male 50.2% = female
Goebert et al. (2000)	4,164	NH, CAU, JPN, NNH, OTH	Alcohol, drug use	Correlational	High school students	Did not specify
Goebert et al. (2004)	2,146	AAPI, NH, CAU	Alcohol	Descriptive	9th–12th	49.5% = male 50.5% = female
Helm et al. (2008)	47	NH, AA, PI, EA, AI	Substance abuse, beer, hard alcohol, cigarettes and marijuana	Qualitative	6th–8th	44.7% = male 53.3% = female
Hishinuma et al. (2000)	Lit review	CAU, NH, FIL, JPN, CHN	Alcohol	Lit review	6th-adulthood	Did not specify
Hishinuma et al. (2005)	2,732	CAU, FIL, NH, JPN, MNH, OTH	Substance use (unspecified)	Correlational	(13–19)	47.7% = male 52.3% = female
Hishinuma et al. (2006)	2,833	NH, CAU, FIL, JPN, MNH, OTH	Substance use, smoking cigarettes	Quasi-experimental	9th–12th	48.5% = male 51.5% = female
Kim, Ziedonis, et al. (2007)	62	NH, CAU, JPN, FIL, OTH, API	Tobacco	Lit review	4th–12th	Lit review
Kim, Withy, et al. (2007)	217	NH, CAU, POR, CHN, FIL, JPN, NAA, SAM, KOR, HIS, AFR, OKN, AAPI	Alcohol, tobacco, and other drugs	Quasi-experimental	6th–9th (10–15)	55.3% = male 44.2% = female
Kim et al. (2009)	250	NH, CAU, API, AFR, AI, NAK	Alcohol, Marijuana and other drugs	Within subjects experimental design	7th–12th (13–18)	68.4% = male 31.2% = female
Makini et al. (1996)	1819	NH	Substance abuse (unspecified)	Exploratory, quantitative	9th–12th	45.2% = male 54.8% = female
Makini et al. (2001)	2980	NH, NNH	Alcohol	Correlational	9th–12th	46.2% = male 53.8% = female

Study	N size	Ethnicity	Drug	Design	Grade (Age)	Gender
Mayeda et al. (2006)	339	FIL, NH, JPN, SAM	Marijuana, cigarette smoking, other substance use	Exploratory, quantitative	9th–12th	41.7% = male 58.3% = female
Mischke et al. (2008)	54	NH, FIL, SAM, CAU	Cigarette	Exploratory, qualitative	6th–8th	35.2% = male 64.8% = female
Nahulu et al. (1996)	2020	NH, NNH	Substance abuse (unspecified)	Correlational	9th–12th	45% = male 55% = female
Nishimura et al. (2001)	542	NH, NNH	Alcohol, Marijuana, and Cigarettes	Correlational	9th–12th	45.8% = male 54.2% = female
Nishimura, Goebert, et al. (2005)	2,657	A API, NH, CAU	Alcohol	Correlational	9th–12th	49.5% = male 50.5% = female
Nishimura, Hishinuma, et al. (2005)	3,711	NH, CAU, JPN, FIL, OTH	Alcohol, Cigarettes, and “Drugs”	Correlational	9th–12th	47.0% = male 53.0% = female
Okamoto et al. (2009)	47	NH, PI, AA, EA, AI	Alcohol, Marijuana, and Cigarettes	Exploratory, qualitative	6th–8th	44.7% = males 53.3% = females
Ramisetty-Mikler et al. (2004)	2,657	API, NH, CAU, OTH	Alcohol, cigarettes, “other drugs” such as marijuana, crack, cocaine, freebase, meth, steroids or inhalants.	Correlational	9th–12th	49.5% = male 50.5% = female
Ramisetty-Mikler et al. (2006)	1,242	NH, CAU, API, OTH	Alcohol, tobacco, and other drugs	Quasi-experimental	9th–12th	45% = male 55% = female
Waitzfelder et al. (1998)	55	Did not specify	Substance Use (concern regarding ice)	Qualitative	Did not specify	Did not specify
Withy, Andaya, et al. (2007)	Unspecified	Did not specify	Substance use (unspecified)	Qualitative	Did not specify	Did not specify
Withy, Lee, et al. (2007)	13	Did not specify	Substance use (unspecified)	Qualitative	5 high school students and other older community members	Did not specify
Wong et al. (2004)	288,831 (CHKS), 25,343 (HSAD)	CHN, FIL, JPN, PI, NH	Alcohol, Meth, Tobacco, Marijuana, Hallucinogens, Cocaine, Heroin and Inhalants	Quasi-experimental	6th–12th	53% = male 47% = female
Yuen et al. (1996)	1,779	NH	Substance use (unspecified)	Correlational	9th–12th	45% = male 55% = female
Yuen et al. (2000)	4,182	NH, CAU, JPN, FIL, OTH	Substance use (unspecified)	Correlational	9th–12th	47.7% = male 52.3% = female

Note. Ethnic groups in study: NH = Native Hawaiian; PNH = Part Native Hawaiian; NHOPI = Native Hawaiian and Other Pacific Islander; NNH = Non-Native Hawaiian; MNNH = Mixed non-Native Hawaiian; API = Asian/Pacific Islander; CAU = Caucasian; EA = Euro-American; AI = American Indian; JPN = Japanese; FIL = Filipino; AFR = African American; KOR = Korean; POR = Portuguese; CHN = Chinese; TON = Tongan; PUR = Puerto Rican; SAM = Samoan; VIT = Vietnamese; NAA = Native American/Alaskan; MFIL = Mixed Filipino; HIS = Hispanic; OKN = Okinawan; NA = Native American; NAK = Native Alaskan.