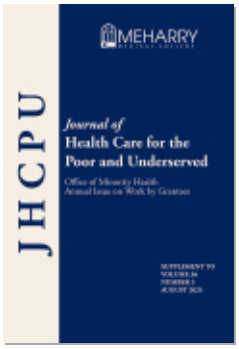
Mental Health Equity for Culturally and Linguistically Diverse Farmers in Hawaiâ€˜i



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RESEARCH PAPER

Mental Health Equity for Culturally and Linguistically Diverse Farmers in Hawai'i

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Abstract: This study examines the systemic challenges to accessing culturally and linguistically responsive mental health care among farmers and limited English proficient (LEP) agricultural workers in Hawai'i, with a focus on the role of federally qualified health centers (FQHCs) in addressing these access barriers and service gaps. Using geospatial analysis, document reviews, and interviews with FQHC personnel, this study explored potential gaps in services tailored for agricultural communities. Key findings reveal a misalignment between FQHC locations and farming regions, limited culturally responsive programs, and barriers such as stigma and language accessibility. Recommendations include expanding mobile clinics, integrating cultural practices, and enhancing language support to address the special needs of Hawai'i's diverse farming populations. This study underscores the need for systemic innovation to ensure mental health accessibility and support for the well-being of essential agricultural workers.

Key words: Farmers, mental health, behavioral health, equity, limited English proficient, FQHC.

Farmers, ranchers, and agricultural workers play a vital role in society but face a range of mental and behavioral health challenges that are well-documented globally.[1,2,3] These include long working hours, physical isolation, economic volatility, limited access to health care, and exposure to environmental hazards.[1] These factors contribute to elevated rates of stress, anxiety, depression, and even suicide in farming populations.[2,3] Research from multiple countries has found that farmers are at higher risk of mental health issues than the general population, partly due to the unpredictable nature of their livelihood, chronic financial stress, and cultural attitudes that discourage help-seeking.[2,3] In Hawai'i, these baseline stressors are further intensified by geographic isolation, linguistic and cultural diversity, and a shrinking agricultural workforce.[4,5] Hawai'i offers an opportunity to examine mental health services designed for its unique population, with its ethnically and linguistically diverse agricultural workforce and deep-rooted cultural and historical ties to the land.[4,5] Challenges associated with this complexity are intensified by the dual realities of a shrinking agricultural

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workforce and Hawai'i's increasing dependence on imported food to meet the needs of its population.[5,6] Addressing these issues is critical not only for the well-being of farmers, but also for the long-term sustainability of Hawai'i's food security and agricultural industry.

To effectively address these interconnected challenges, it is essential to understand the broader mental health landscape in Hawai'i and evaluate how existing support systems—primarily federally qualified health centers (FQHCs)—are positioned to meet the needs of its agricultural community.[7] While FQHCs are the primary safety-net providers for uninsured and underserved populations, they are not the only entities offering behavioral health services.[7] Some Community Mental Health Centers operated by the Hawai'i State Department of Health provide services in select areas, though their reach is more limited and primarily geared toward individuals with serious mental illness.[7] Additionally, a small number of private clinics, nonprofit organizations, and faith-based health initiatives serve rural communities, but these are unevenly distributed and often inaccessible due to cost, transportation, or language barriers.[7] Given these limitations, FQHCs remain the most accessible and culturally responsive resource for many agricultural workers.[7] Therefore, this paper begins with an analysis of Hawai'i's mental health landscape as it relates to the behavioral health needs of farmers. This is followed by an overview of their special challenges and evaluates the role of FQHCs in meeting need by examining their current capabilities and opportunities for improvement, with particular attention to the cultural, linguistic, and ethnic diversity within Hawai'i's farming community.

Literature review. Understanding current health care gaps in Hawai'i requires acknowledging the historical and systemic factors that have profoundly shaped health care access and outcomes in the region. The overthrow of the Hawaiian monarchy in 1893 and subsequent annexation in 1898 marked a pivotal shift that forced the integration of Western health care frameworks while marginalizing Indigenous practices.[8] Traditional Native Hawaiian approaches to health, which emphasized a holistic balance of mental, physical, and spiritual being, were systematically devalued and displaced.[9] By the late 19th century, the Native Hawaiian population had experienced a devastating decline from an estimated 683,200 in 1778 (at the time of first European contact) to approximately 29,336 by 1900, due to colonial-imposed diseases and inadequate access to medical care.[10] This historical trauma has perpetuated health care access issues, contributing to disproportionately poor health outcomes that continue to affect Native Hawaiian communities today.[11]

These historical injustices have contributed to persistent mental health inequities among ethnic groups in Hawai'i, with Native Hawaiians and Pacific Islanders (NHPIs) bearing a disproportionate burden relative to the White population.[10,11,12] This is also particularly evident in the distribution of Hawai'i's Medicaid beneficiaries, where NHPIs account for 34.7%, compared with 29.7% for Whites and 28.5% for Asians.[13] These gaps are striking, considering that NHPIs constitute only about 10.3% of Hawai'i's general population, while Asians make up 37.3% and Whites 25.2%.[14] With regard to outpatient mental health service utilization among Medicaid beneficiaries in Hawai'i, 27.5% of White beneficiaries accessed services, compared with 19.9% of Asian beneficiaries and just 17.0% of NHPI beneficiaries.[13] These rates suggest a mismatch between service

use and both population proportions and presumed need.[13] These statistics reflect not only differences in health care access but also deeper gaps that continue to shape health outcomes in Hawai‘i.

The barriers to mental health care access in Hawai‘i are multifaceted, encompassing both cultural and linguistic challenges that particularly affect underserved populations.[15,16] According to the U.S. Census Bureau American Community Survey (2018–2022), approximately 25.9% of Hawai‘i residents aged five and older speak a language other than English at home, and about 42.9% of these individuals report speaking English less than "very well."[17,18] This figure does not capture the full multilingual complexity of many households, but suggests a substantial portion of the population may face challenges navigating an English-dominant health care system. Hawai‘i's LEP population varies significantly across racial groups.[18] Asian Americans have the highest LEP rates, with Vietnamese (43.1%), Korean (22.1%), and Filipino (19.4%) populations showing the greatest need for language-accessible services.[18] Among Pacific Islander groups, LEP rates are generally lower, though still significant; Micronesians have a rate of 33.2%, Tongans 15.1%, and Native Hawaiians the lowest at 2.1%.[18] The most common non-English languages include Ilocano, Tagalog, Japanese, Chinese, Korean, and Vietnamese, reflecting the strong presence of Asian and Pacific Islander communities in the state.[18,19] This linguistic diversity is particularly relevant in agricultural settings, where many workers are immigrants or descendants of immigrants from these groups.[19] Understanding the ethnic and linguistic composition of Hawai‘i is essential for evaluating outreach efforts, mental health services, and culturally appropriate programming targeted at agricultural communities.[13,15] Cultural attitudes and beliefs further shape help-seeking behaviors, with many NHPI individuals favoring traditional healing practices over clinical interventions.[11,15] Stigma remains particularly pervasive among Native Hawaiian and Filipino communities, where mental illness is often viewed as a personal failure rather than a treatable condition.[20] Among Filipinos, the impact of this stigma is stark, with 75% reporting they have never accessed mental health care, a reluctance deeply rooted in colonial mentality and cultural beliefs about mental illness.[20] This trend extends to the broader Asian American community in Hawaii. According to the U.S. Census Bureau, as of July 2024, Asian Americans constitute approximately 37.3% of Hawaii's population, while White individuals make up about 25.2%.[14] However, data from the Adult Mental Health Division (AMHD) for 2021 reveals a disproportionate utilization of mental health services: 36% of service users were White, whereas only 25% were Asian American.[21] Native Hawaiian and Pacific Islander individuals make up 10.3% of Hawai'i's population but account for 28% of AMHD consumers.[21] This discrepancy indicates underrepresentation of Asian Americans in mental health service utilization relative to their population size, underscoring the need for culturally and linguistically sensitive outreach and services to address potential barriers within this community.

Within Hawai‘i's agricultural communities, these general health care barriers intersect with challenges specific to farming life.[4,5] The cultural and structural realities of agricultural work create distinct mental health challenges, as farmers often prioritize values such as autonomy and resilience, viewing mental health struggles as incompatible with these ideals. [5] Financial distress serves as one of the primary contributors to

mental health issues among farmers, with declining commodity prices, rising operational costs, and volatile market conditions placing immense economic pressure on agricultural workers.[6] These stressors are compounded by environmental uncertainties, including unpredictable weather patterns and climate-related risks, which threaten both yields and livelihoods. Recent research reveals the extent of this crisis, with 34% of Hawai'i's farmers reporting depressive symptoms and 8% experiencing suicidal ideation.[4,5] For comparison, only 10.7% of adults in Hawai'i's general population report frequent mental distress, and 4.2% of working adults report suicidal ideation.[22,23] These numbers underscore the elevated mental health burden faced by farmers in the state.

The context for these challenges lies in the significant transformation of Hawai'i's agricultural industry over the past three decades. The sector has shifted dramatically, becoming predominantly small-scale, with 66.4% of farms operating on just one to nine acres.[24] This transformation has been accompanied by a substantial decline in agricultural output, with inflation-adjusted production decreasing by 72.9% between 1980 and 2019, primarily due to the collapse of the once-dominant sugar and pineapple industries.[6] Despite these advances, significant challenges remain in improving health care access in Hawai'i, particularly for limited English-proficient individuals and agricultural workers.[25,26,27] Historical conditions shaped by the plantation-era agricultural system contributed to long-standing social and geographic barriers that still affect health today.[27] Native Hawaiian, Pacific Islander, and Filipino communities often face more difficulty accessing and using health services than the White population in Hawai'i.[27]

In response to complex challenges in health care, both on the mainland and in Hawai'i, FQHCs have emerged as crucial providers of comprehensive, accessible health care for underserved populations.[28,29] These centers in Hawai'i have demonstrated significant growth in service provision, with a 23% increase in behavioral health visits per 1,000 population from 2012 to 2019, though utilization rates for NHPIs have remained below the state average.[30] Federally qualified health centers serve a vital role in addressing health care accessibility,[31] with over 91% of their patients nationally living below 200% of the federal poverty line and 63% identifying as members of racial or ethnic minority groups.[32] Community health centers (CHCs) and FQHCs in Hawai'i play a critical role in reaching underserved populations, including those with limited English proficiency and limited economic resources.[33] While only about 10% of Hawai'i's general population lives below the federal poverty line, approximately 50% of patients served by CHCs and FQHCs live at or below 100% of the federal poverty level.[33] This highlights the essential safety-net function of these centers in addressing health care access gaps. According to data from the Hawai'i Primary Care Association (2024) and the Uniform Data System (Health Resources and Services Administration, 2025), Hawai'i has 14 FQHCs operating over 70 service sites, collectively serving between 150,000 and 170,000 patients annually.[34,35] Their integrated approach to health care delivery includes not only primary care and mental health services, but also culturally responsive programs designed to address the specific needs of diverse communities.[34,35]

The effectiveness of FQHCs in serving agricultural communities has been enhanced by innovative service delivery models that address the challenges faced by farmers and agricultural workers. Mobile health clinics, telehealth programs, and flexible scheduling help overcome barriers related to geographic isolation and demanding work

schedules.[36,37] Furthermore, FQHCs integrate patient voices through governing boards with local representation, ensuring services remain culturally sensitive and relevant to community needs.[31] This approach has proven particularly valuable in addressing the complex intersections of cultural, linguistic, and geographic barriers that often prevent agricultural workers from accessing necessary health care services.

Despite these advances, significant challenges remain in improving health care access in Hawai'i, particularly for agricultural workers and limited English-proficient individuals. Historical conditions shaped by the plantation-era agricultural system contributed to long-standing social and geographic barriers that still affect health today. Compared with the White population in Hawai'i, NHPI and Filipino communities often face more difficulty accessing and using health services[27] While FQHCs are well-positioned to serve these populations through adaptable and culturally responsive care models, further research and targeted interventions are needed to fully address the complex mental health needs of Hawai'i's diverse communities. The path forward requires continued innovation in health care delivery, stronger integration of cultural practices, and sustained commitment to addressing the systemic barriers that perpetuate health accessibility in the state.

Research questions. Research on the intersection of linguistic diversity, agricultural work, and mental health service delivery remains sparse, particularly in Hawai'i, though recent efforts such as the Farm and Ranch Stress Assistance Network (FRSAN)—Hawai'i State Plan have begun to address these gaps.[38] While studies on FQHCs tend to focus on urban or broadly underserved populations, they often neglect the challenges faced by rural farming communities. Existing evaluations emphasize quantitative metrics, overlooking critical contextual factors such as cultural stigma, and historical and geographic factors.[39,40]

Hawai'i's plantation history has shaped the current health conditions of immigrant and Native Hawaiian communities, contributing to reduced access to care and poorer well-being relative to the White population, due in part to geographic isolation and socioeconomic factors.[41] Understanding these dynamics, along with assessing FQHCs' capacity to provide culturally and linguistically tailored care, is essential for advancing mental health equity in the state. This paper investigates the role of FQHCs in addressing mental health accessibility among linguistically diverse farmworkers in Hawai'i, guided by the following research questions:

1. How does the geographic distribution of FQHCs align with the locations of farming communities and where farmers live in Hawai'i?
2. What mental health services do FQHCs in Hawai'i provide specifically for *farm culture* and/or linguistically diverse farmers, and how are these services adapted to their specific needs?

By addressing these questions, this study seeks to identify service gaps, evaluate the alignment of FQHC resources with farming populations, and offer actionable recommendations to enhance the accessibility and effectiveness of mental health care for underserved agricultural workers in Hawai'i.

Methods

This study employed a convergent mixed methods design, integrating geospatial analysis, document review of FQHC websites and annual reports, and semi-structured interviews with FQHC personnel. Geospatial data were analyzed using ArcGIS Online[42] to visualize and assess the alignment between FQHC locations and farming populations. Document reviews established the baseline for service provision and outreach practices across Hawai'i's 14 FQHCs. These findings were triangulated with qualitative data from interviews.

To guide the theoretical and conceptual framing, we used the social determinants of health (SDOH) framework, recognizing how place-based, cultural, and linguistic factors affect access to mental health services in agricultural communities.[43]

Interviews, although brief (5–10 minutes), were semi-structured and designed to elicit information about culturally and linguistically adapted services. While some questions were close-ended for clarity, they were followed by open-ended probes and email exchanges to deepen understanding. We acknowledge the brevity as a limitation due to FQHC staff availability, but data were adequate for thematic saturation.

We conducted a thematic analysis, identifying key themes such as: (1) misalignment of FQHCs with farming areas, (2) gaps in culturally responsive mental health services, and (3) language accessibility challenges. Data were coded inductively using manual coding, with categories refined iteratively.

The study adhered to ethical standards and received IRB approval from the University of Hawai'i at Mānoa's Institutional Review Board (Protocol #2024-00841). All participants provided informed consent prior to the interviews.

Geospatial analysis. ArcGIS Online was used to conduct a geospatial analysis of health centers and agricultural areas in Hawai'i, incorporating multiple datasets into detailed map layers. Federally qualified health centers[42] were categorized as primary centers or satellite facilities, with location data retrieved from the Health Resources and Services Administration.[44] Primary centers were marked as diamonds, and satellite facilities were represented as triangles. To contextualize health care access for farming communities, farming occupation data by ZIP Code Tabulation Area (ZCTA) was derived from the American Community Survey (ACS) 5-year estimates.[45] The variable used to define farming populations was C24050: Industry by Occupation for the Civilian Population (Agriculture, Forestry, Fishing and Hunting category), which includes individuals employed in crop production, animal production, and support activities for agriculture.[45] These data were pictured by means of larger circles indicating higher concentrations of farming-related employment. Additionally, cropland data from the 2020 Hawai'i Statewide Agricultural Land Use Baseline were incorporated, with active cropland areas shown as grey polygons.[46]

The datasets were processed and symbolized in ArcGIS Online for clarity and interpretability. Distinct sizes and shapes provided a cohesive visual representation of the spatial relationships between health care facilities and agricultural activity across Hawai'i's counties.

Review of publicly available F*QHC information. A total of 14 FQHCs across the four Hawai'i counties (Honolulu, Kaua'i, Hawai'i, and Maui) were identified, and their publicly available websites, documents, and reports were examined. These materials included annual reports, patient satisfaction surveys, intake forms, needs assessments, program flyers, and informational handbooks. Annual reports and needs assessments were analyzed to determine the scope of services offered, such as mental health programs, interpreter availability, and culturally tailored care initiatives.

Program flyers and outreach materials were systematically reviewed using a qualitative content analysis approach. Materials were categorized and coded according to predefined themes such as farm-specific mental health efforts, health education, and culturally or linguistically tailored outreach strategies. These findings were used to inform the development of interview questions and clarify service patterns across FQHCs. Patient satisfaction surveys provided information on how FQHCs address accessibility and service delivery for linguistically diverse and farming populations. Intake forms and handbooks were evaluated to assess whether FQHCs specifically identified and accommodated agricultural workers, including details on employment status, language needs, and cultural preferences. This document review established a general understanding of the services and outreach efforts in place, serving as a foundation for the design of semi-structured interview.

Semi-structured interviews with FQHC personnel. Semi-structured interviews with FQHC personnel were conducted to evaluate mental and behavioral health service provision for linguistically diverse farmers in Hawai'i. Using purposive sampling, we contacted all 14 FQHCs in the state through cold calls to identify appropriate behavioral health staff. Once contact was established, semi-structured interviews were conducted via telephone, averaging five to ten minutes per session. In cases where initial phone communication was limited or respondents needed additional time to verify details, follow-up questions were sent via email to clarify and supplement the responses. Interviews were conducted using an interview guide designed to collect both categorical (yes/no) and narrative responses. The yes/no format provided systematic assessment across key service domains (e.g., intake procedures, translator availability, cultural competency measures), enabling standardized comparability across centers while maximizing efficiency within time constraints. Each closed-ended question included optional prompts for elaboration, with participants frequently providing contextual details beyond their binary responses.

Interviews were audio-noted during the interview and synthesized into analytic memos. Data were analyzed using a rapid qualitative analysis approach, which involved summarizing interview responses into a matrix organized by key domains (e.g., service availability, cultural responsiveness, translation).[47] Each interview was reviewed by two team members to ensure consistency in thematic categorization. Thematic categories were refined iteratively across cases. While the COREQ checklist will guide future

*For this study, the counties of Hawai'i were distilled into four: Hawai'i County, Honolulu County, Maui County (including Moloka'i, Lāna'i, and Kaho'olawe), and Kaua'i County (including Ni'ihau); with Kalawao County functionally included under Maui County for simplicity and alignment with service and population analysis.

reporting, this study employed structured summaries and manual content analysis to ensure rigor.[48] Findings were triangulated with document reviews (intake forms, informational materials, organizational reports) to strengthen reliability. Follow-up questions were sent via email to gather additional details and clarify information when needed. While response depth varied across FQHCs, the data collected were sufficient to identify meaningful trends in service provision, accessibility gaps, and potential opportunities for improving behavioral health support for linguistically diverse farming communities in Hawai'i.

Participants were asked targeted questions about the availability of mental health services, language accessibility, and cultural responsiveness, particularly for LEP clients and farmers. Key questions included:

- Do you have services specifically for farmers?
- Do your intake forms ask about clients' status as farmers, agricultural workers, or migrant workers?

Language accessibility was explored with inquiries such as:

- Do you provide translators or other methods for serving non-English-speaking clients?
- Do your intake forms ask if clients need a translator?
- Are translators readily available?

While FQHCs are required by federal law to provide language access services for patients with limited English proficiency, these questions aimed to assess how translation services were implemented in practice—specifically the availability of professional interpreters, consistency of service delivery, and challenges related to less commonly spoken languages.

Cultural responsiveness was assessed with questions such as:

- Do you have services specifically for culturally diverse populations? If yes, which cultures and services?

Additional questions addressed potential challenges and staff preparedness:

- What challenges exist in engaging farmers with mental health services?
- What cultural responsiveness training is provided to staff?

These interviews aimed to identify service gaps, highlight best practices, and uncover opportunities to enhance the mental health care available to farmers in Hawai'i. Insights from these discussions contributed to a more comprehensive understanding of current practices and areas for improvement.

Follow-up questions via email served to clarify, verify, or complete responses that were incomplete or tentative during the interviews. For example, some participants were unsure about specific data (e.g., the number of non-English-speaking clients served) or wanted to confirm details with colleagues before responding. The email format also allowed participants to reply at their convenience and often resulted in more thoughtful, detailed answers. These questions included:

- Do you have services specifically for farmers?
- If yes, do you know how many (guesstimate) are served per month?
- Do your intake forms ask about your clients' status as farmers, agricultural workers, or migrant workers?
- Do you provide translators or other methods for serving non-English-speaking clients?
- How many (guesstimate) non-English-speaking clients seek services each month?
- Do your intake forms ask if they need a translator?
- Are translators readily available?
- Do you have services specifically for culturally diverse populations?
- If yes, which cultures? Which services?

While not all FQHCs were able to provide complete answers to these questions, the responses collected were sufficient to identify trends in gaps and opportunities.

Results

Geospatial analysis of FQHCs and agricultural areas. The geospatial analysis revealed that FQHCs in Hawai‘i are predominantly concentrated in urban and suburban population centers across the major islands. While this distribution supports access in densely populated regions, it leaves significant service gaps for rural farming communities, particularly in the northern and eastern parts of the islands. These rural areas, often located far from primary health care hubs, face geographic isolation that limits access to mental and behavioral health services.

For example, on the island of O‘ahu, most FQHCs are in the southern and central regions, while farming communities in the northern and eastern rural zones have limited nearby services. Similarly, the island of Hawai‘i (also known as the Big Island) shows a clustering of health centers in western urban areas, with large agricultural regions in the east and south underserved. On the islands of Maui, Kaua‘i, and Lāna‘i, health centers tend to be situated in central towns, leaving outer rural zones with reduced access.

To provide further context, estimated driving distances from remote agricultural areas to the nearest FQHC highlight significant access barriers. Estimated driving times from agricultural areas to the nearest FQHCs were obtained using Google Maps, based on commonly used routes and average traffic conditions. On the island of Hawai‘i, farmers in southern districts such as Ka'ū often face commutes of over 60–75 minutes to reach health centers in Hilo or Kona. Similarly, on the island of O'ahu, agricultural communities in the northern region typically require 40–50 minutes of travel to reach urban-based FQHCs. On the islands of Maui and Kaua'i, rural farming areas may be 30–45 minutes away from the nearest FQHC, with limited public transportation options exacerbating the challenges imposed by distance. These distances underscore the geographic misalignment between FQHC locations and farming communities, posing a significant barrier to timely and consistent access to mental and behavioral health services for these communities.

Integrated findings from document review and interviews. Table 1 provides a summary display of the interview findings, highlighting key challenges and areas for

Figure 1. Map of Honolulu County displaying FQHCs, cropland, and farming occupations.

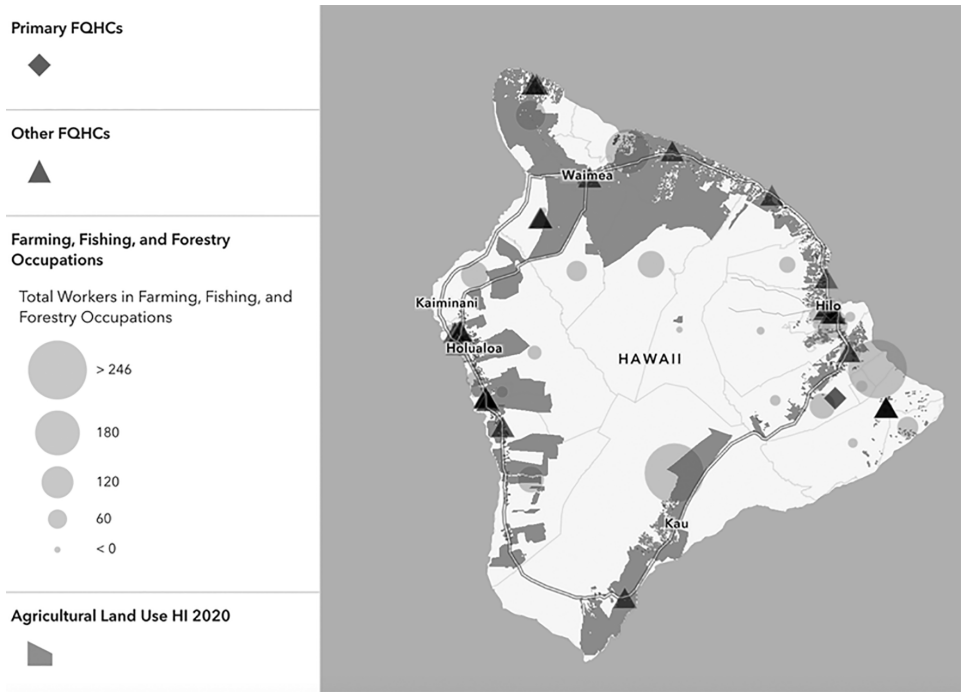

Figure 2. Map of Hawaii County displaying FQHCs, cropland, and farming occupations.

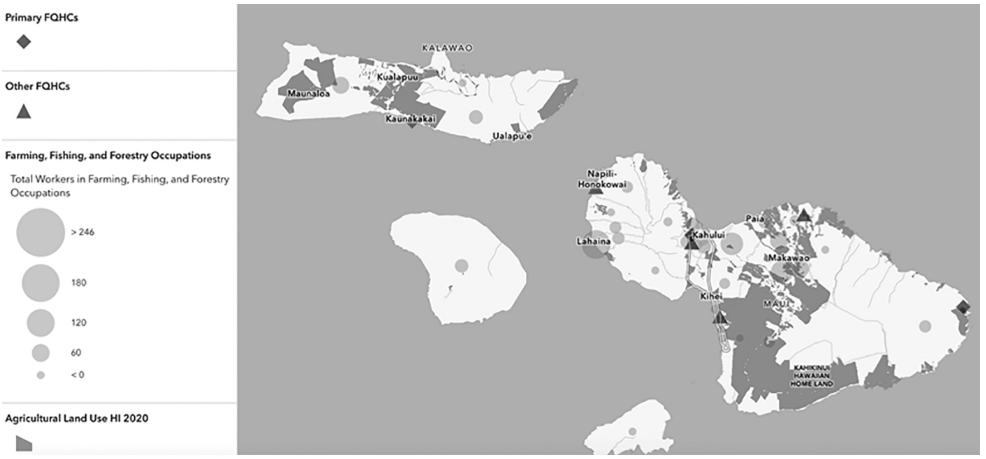

Figure 3. Map of Maui County displaying FQHCs, cropland, and farming occupations.

Figure 4. Map of Kauai County displaying FQHCs, cropland, and farming occupations.

improvement in meeting the mental health needs of farmers and linguistically diverse populations (LEPs) in Hawai'i. Among Hawai'i's 14 FQHCs, only two centers (14%) reported offering services specifically tailored to farmers. One center had previously operated a farmer outreach program but discontinued it due to resource limitations. A staff member reflected, "*We used to have a farmer-specific program, but it's no longer*

Table 1.

BARRIERS, GAPS, AND OPPORTUNITIES IN FARMER-SPECIFIC AND CULTURALLY RELEVANT BEHAVIORAL HEALTH SERVICES (N=14)[a]

Category	Percentage	Findings	Gaps	Opportunities
Farmer-Specific Services	14% (*n*=2)	Programs tailored to farmers; one was discontinued due to resource constraints.	Lack of consistent and sustainable farmer-specific programs.	Revive and expand programs by partnering with agricultural organizations.
Intake Forms Tracking Farmers	21% (*n*=3)	Intake forms ask about farming/ agricultural status.	Limited systematic tracking of occupational data across all centers.	Standardize forms to collect occupational data consistently.
Language Support	79% (*n*=11)	Translation services provided in Tagalog, Ilocano, Spanish, and Marshallese; inconsistent access.	Over-reliance on informal interpreters, compromising privacy.	Increase availability of professional interpreters and use translation technology.
Culturally Tailored Programs	36% (*n*= 5)	Programs include culturally specific practices such as lomilomi; exclude farm culture adaptations.	Absence of culturally tailored mental health interventions for farmers.	Develop culturally relevant programs to support farming communities.
Barriers	71% (*n*=10) Stigma 50% (*n*=7) Isolation 57% (*n*=8) Access	Major barriers include stigma, geographic isolation, and access difficulties.	Farmers face disproportionately high mental health challenges due to systemic barriers.	Implement mobile clinics and outreach programs to overcome logistical and cultural barriers.

Note
[a]Data from a survey of 14 Federally Qualified Health Centers in Hawai‘i.

active. Without dedicated outreach, it's hard to engage this population." Another center emphasized trust-building as a central approach to serving farmers, but acknowledged the absence of structured mental health programs for this group. As one staff member noted, *"Farmers have unique stressors—financial pressures, isolation, and physical demands—but we lack the resources to address them directly.*"

Twenty-one percent of FQHCs (n=3) tracked clients' farming or agricultural worker status in their intake forms. One center highlighted the importance of this step, explaining, *"By asking about farming status, we can at least acknowledge this community exists, but we need more follow-up support.*" This limited systematic identification of farmers makes it challenging to design and deliver tailored services.

Translation services were available at most centers, with 11 of 14 centers (79%) offering support in languages such as Tagalog, Ilocano, Spanish, and Marshallese. However, the availability of these services varied, and some centers relied on family members to assist with translation. While this may suggest that not all FQHCs provide professional language access services, such findings are likely attributable to limitations in data collection or methodology rather than widespread noncompliance with federal requirements mandating language access for patients with limited English proficiency. One staff member described the challenges: "*We rely on family members to assist during appointments, which often compromises privacy and trust.*" Additionally, some centers noted difficulties providing support for less commonly spoken languages, with one staff member explaining, *"We struggle to find consistent resources for languages like Marshallese.*" Thirty-six percent of FQHCs offered culturally tailored programs for groups such as Native Hawaiians, Filipinos, Chuukese, and Marshallese, often incorporating practices such as lomilomi (massage) and lā'au lapa'au (herbal medicine). However, none of these programs targeted farmers specifically. One staff member suggested, *"Our Native Hawaiian healing practices create trust and engagement, but we haven't extended these to agricultural workers yet.*"

All centers acknowledged significant challenges in reaching farmers with mental health services. Stigma, geographic isolation, and logistical barriers were common issues. One staff member explained, *"Farmers often see mental health care as a weakness. Outreach needs to be sensitive and non-threatening.*" Another highlighted the need for mobile clinics to overcome these barriers, stating, *"Many farmers can't afford to leave their fields for appointments, so mobile clinics could be a solution.*"

Some centers identified opportunities to improve their services for farmers. Suggestions included revitalizing farmer-specific programs, expanding mobile health clinics, and forming partnerships with agricultural organizations. One participant emphasized the potential of collaboration, noting, *"Partnering with farmer cooperatives could help us reach this underserved group more effectively.*" These insights underscore both the existing gaps and the potential strategies for enhancing mental health care for Hawai'i's farming communities.

To further contextualize the findings in Table 1, Table 2 offers a descriptive analysis of each FQHC's service area, language access provisions, and culturally tailored programs. This table highlights the variation in service capacity across the 14 FQHCs, showing that while many centers provide basic language support, only a few offer culturally grounded care. Notably, FQHCs serving rural regions (where many agricultural work-

Table 2.

DESCRIPTIVE ANALYSIS OF FEDERALLY QUALIFIED HEALTH CENTERS (FQHCS) IN HAWAIʻI

FQHC Categories	Geographic Setting	Primary Population Served	Mental Health Services	Language Accessibility	Agricultural Worker-Specific Programs	Cultural Adaptations
A	Urban/Honolulu	Immigrant communities	Integrated behavioral health	Tagalog, Ilocano, Korean	None identified	Staff training
B	Urban/City	Diverse low-income residents	Screening and referrals	Vietnamese, Marshallese	Limited outreach	Adapted counseling materials
C	North Shore	Farmworker families	Full behavioral health	Filipino interpreters	Former outreach program	Traditional healing offered
D	Central rural region	Native Hawaiian population	Crisis response and counseling	Hawaiian & English	None available	Lomilomi and lāʻau lapaʻau
E	Neighbor Island	Pacific Islander and Hawaiian communities	Telehealth and outreach services	Marshallese, Chuukese	Mobile outreach (limited)	Pacific healing integrated
F	Remote area	Agricultural laborers	On-site counseling	Chuukese, Samoan	Nutrition and food box support	Cultural wellness workshops
G	Urban/City	Homeless and housing-insecure populations	Substance use and MH counseling	Multiple Pacific Island languages	Housing support	Trauma-informed training
H	Island region	Working class and rural migrants	Behavioral triage and support	Hawaiian Pidgin, Ilocano	Case management for farm-workers	Herbal healing referrals
I	Mixed rural/urban	Isolated seniors and farmworkers	Psychiatric care via telehealth	Basic interpreter access	Wellness events at farms	Spiritual care options
J	Remote coast	Native Hawaiian coastal villages	Group and individual counseling	Language line services	Community garden tie-ins	Indigenous approaches in care
K	Urban fringe	Ethnically mixed urban poor	Integrated behavioral health team	On-call interpreters	Seasonal migrant care efforts	Cultural safety emphasis
L	Agricultural district	Multi-ethnic farm populations	Tele-mental health pilot	Translation through bilingual staff	Community-led farmworker check-ins	Integrated lāʻau lapaʻau
M	Central Honolulu	Urban Indigenous and immigrant mix	Behavioral navigator and referrals	Basic Tagalog and Vietnamese	Nutrition and MH support for workers	Cultural support groups
N	Outer Island rural	Remote underserved populations	Occasional visiting therapists	Limited services	None known	Episodic culturally based care

ers reside) tend to have fewer dedicated programs for LEP populations or culturally specific mental health services. This reinforces the interview findings and points to the need for more consistent and targeted service delivery models across the state.

Discussion

This study highlights the continuing challenges related to health care access for rural and linguistically diverse farming communities in Hawai‘i, including geographic distance, limited language services, and the need for more culturally tailored mental health programs. While many of these issues have been recognized in earlier literature, this study contributes new empirical detail on how these gaps persist at the level of federally qualified health centers (FQHCs) and where opportunities exist for more targeted service delivery.[5,9]

The geospatial analysis reveals a fundamental misalignment between FQHC locations and agricultural communities that reflects broader gaps in health care access for rural and farming communities. While FQHCs have been successfully established in urban and suburban areas, their placement tends to follow overall population density rather than the distribution of agricultural activity, resulting in significant geographic barriers to care for rural farming communities.[49] These spatial barriers are particularly evident in regions like the North Shore of O‘ahu, agricultural areas of Maui such as Kula and Pā‘ia, and remote farming communities in Hawai‘i County. These findings echo historical patterns of health care infrastructure development that have traditionally prioritized urban centers over rural communities, perpetuating access gaps that disproportionately disfavor agricultural workers.[30,46] To address these distance-related challenges, service delivery approaches such as mobile clinics and telehealth should be considered to improve reach and responsiveness.[37]

The limited availability of mental health programs that intentionally engage with the agricultural community—reported by only two centers (14%) of FQHCs—suggests a need to better tailor services. While farmer-specific interventions remain limited, the distinctive stressors of agricultural life (e.g., financial instability, weather-related uncertainty, and cultural norms around self-reliance) call for targeted adaptations. Programs like AgriSafe's 3.5-hour training for health professionals aim to build provider awareness of the farming context and improve rapport with agricultural clients, demonstrating how existing services can be refined to better serve this population.[50] The discontinuation of existing farmer outreach programs due to resource constraints further highlights the vulnerability of specialized services and the need for sustainable funding models. This scenario is especially problematic in Hawai‘i's context, where the agricultural sector's transformation over recent decades has created additional stressors for farming communities already struggling with mental health challenges.[4,5,6]

Language accessibility emerges as a critical factor in mental health service delivery, with implications extending beyond simple translation services. While 11 FQHCs (79%) offer some form of language support, the reliance on informal interpreters and family members compromises privacy and may deter individuals from seeking mental health care.[40] This challenge is particularly acute for LEP agricultural workers, who may face compounded barriers when seeking mental health support. The situation reflects

broader systemic issues in health care delivery for LEPs and highlights the need for more robust language access programs that consider both technical translation needs and cultural nuances in mental health care.[51]

Cultural responsiveness in mental health service delivery presents another significant challenge. While only five FQHCs (36%) offer culturally tailored programs, these initiatives may often miss the specific cultural context of farming communities. This gap is particularly significant in Hawai'i, where agricultural work is deeply intertwined with cultural identity and traditional practices.[8,52] The absence of programs that integrate understanding of farming culture with cultural responsiveness represents an opportunity to create more effective and accessible mental health services for agricultural workers.

The study's findings regarding stigma and cultural barriers to mental health care access align with broader research on challenges faced by agricultural communities in accessing and using health care.[53] The perception of mental health challenges as personal failures rather than treatable conditions remains particularly prevalent among farmers, reflecting deeply embedded cultural values around self-reliance and resilience.[16,53] This cultural context requires specialized approaches that acknowledge and address these beliefs while providing accessible and acceptable forms of support.

The integration of traditional healing practices, such as lomilomi and lā'au lapa'au, in some FQHCs demonstrates potential pathways for culturally responsive care. However, the lack of systematic integration of these practices with conventional mental health services, particularly for farming communities, represents a significant gap in service delivery.[8,54] This disconnect highlights the need for innovative approaches that bridge traditional healing practices with contemporary mental health care while acknowledging the cultural context of agricultural work.

Recommendations for FQHCs. The challenges identified in this study point to several critical areas for improvement in mental health service delivery for farmers and LEP populations in Hawai'i. First, FQHCs must develop sustainable models for farmer-specific outreach and mental health programs that can withstand resource constraints and shifting funding landscapes. The discontinuation of previous farmer-outreach programs due to limited resources highlights the urgency of creating robust and adaptable service models.[30] Innovative delivery methods, such as mobile clinics and telehealth, have demonstrated promise in removing logistical barriers for remote agricultural communities and should be prioritized.[37,55]

Second, language access services require significant enhancement, moving beyond basic translation to create culturally and linguistically appropriate mental health care. This includes developing professional interpretation services trained in mental health terminology and cultural responsiveness, as well as increasing the availability of bilingual mental health providers. Current reliance on informal interpreters, such as family members, compromises privacy and effectiveness, highlighting the need for systemic improvements.[40,49]

Third, cultural responsiveness training for health care providers should be expanded to include specific understanding of farming culture and the stressors faced by agricultural workers. Farmers often prioritize values of autonomy and resilience, viewing mental health struggles as personal failures, which requires providers to deliver care with cultural sensitivity.[49,56] Integrating traditional healing practices such as lomilomi

and lā‘au lapa‘au into contemporary mental health approaches offers additional opportunities to create culturally responsive services.[8]

Finally, geographic access barriers must be addressed through strategic placement of new facilities and the expansion of mobile services to underserved agricultural areas. Rural farming regions, such as the North Shore of O‘ahu and parts of Maui and Hawai‘i counties, are currently underserved, leaving farming communities without accessible mental health care.[30,46] Innovative service delivery models, such as mobile clinics and telehealth platforms, can help bridge these gaps by bringing services directly to remote communities.[37,55]

While the recommendations offered—such as expanding mobile clinics, enhancing language support, and integrating cultural practices—are grounded in provider perspectives and existing service gaps, their effectiveness and relevance would benefit from validation through future research that centers patient and community voices. Exploring farmers' own experiences and preferences is critical to understanding mental health needs and selecting or adapting interventions that are both feasible and impactful. Therefore, these proposals should be seen as starting points for deeper, community-informed engagement rather than definitive solutions.

Limitations and future research. While this study provides valuable insights into the mental health service landscape for farmers and LEP populations in Hawai‘i, several methodological and contextual limitations warrant consideration. The reliance on FQHC annual reports and interviews presents inherent data constraints, as these sources may not fully capture the nuanced realities of service delivery or the lived experiences of agricultural workers seeking mental health care. The relatively small sample size of 14 FQHCs, while representing all centers in Hawai‘i, limits the generalizability of findings to other geographic contexts or health care systems. Additionally, the study's focus on formal health care institutions may overlook informal support networks and traditional healing practices that play crucial roles in farming communities.

The geospatial analysis, while illuminating spatial relationships between FQHCs and agricultural areas, was constrained by the static nature of the data, which may not reflect seasonal variations in farming activities or temporary worker populations. Furthermore, the study's timing during a period of significant agricultural transition in Hawai‘i may not capture the full spectrum of challenges faced by farming communities adapting to changing economic and environmental conditions. Methodological limitations include potential response bias in FQHC interviews, as staff members may have presented optimistic assessments of their services and capabilities. The absence of direct input from farmers and LEP agricultural workers in the study design and data collection phases represents a significant limitation in understanding their perspectives and needs. To strengthen qualitative rigor, future iterations of this work will incorporate consolidated criteria for reporting qualitative research (COREQ) standards and extend interviews to include farmers' perspectives.[48] Additionally, the study's cross-sectional design prevents analysis of how mental health service needs and delivery patterns may evolve over time, particularly in response to changing agricultural conditions and health care policies.

These limitations point to several promising directions for future research. First, longitudinal studies examining the effectiveness of mental health interventions specifically designed for farming communities could provide valuable insights into

sustainable service models. Such research should employ mixed-methods approaches that combine quantitative outcome measures with qualitative exploration of farmers' experiences and preferences. Future investigations would benefit from employing a Culturally-Based Community Connections for Resilience (CCCR) framework, which emphasizes community engagement and cultural responsiveness in advocating for a collaborative and integrated response to addressing the mental and behavioral health challenges of essential workers, including farmers.[57] This approach is engaging farmers, LEP populations, farmer associations, and health care providers as co-developers, ensuring that any research/evaluation questions and prevention strategies reflect community priorities and cultural perspectives. Participatory action research methods are particularly valuable in identifying and evaluating innovative, community-driven solutions to mental health service gaps.[58]

Future research and evaluation priorities should include:

1. Examination of informal support networks and traditional healing practices within farming communities, exploring how these systems interact with formal health care services;
2. Investigation of the effectiveness of mobile health clinics and telehealth initiatives specifically designed for agricultural workers;
3. Analysis of how language access services could be optimized for mental health care delivery in agricultural settings;
4. Assessment of the impact of cultural responsiveness training programs on mental health service utilization and outcomes; and
5. Exploration of sustainable funding models for farmer-specific mental health programs.

Additionally, comparative studies examining mental health service delivery models across different agricultural regions could provide valuable insights into best practices and scalable solutions. Such research should consider the historical, cultural, and economic contexts that shape mental health needs and service delivery in different farming communities.

The broader implications of this research extend beyond Hawai'i's agricultural sector. Farmers represent essential workers whose mental health and well-being have direct implications for food security, economic stability, and community resilience. As climate change, market pressures, and technological transitions continue to reshape agricultural work, understanding and addressing the mental health needs of farming communities becomes increasingly critical. Future research must also consider the evolving nature of agricultural work and its implications for mental health service delivery. This includes examining how technological changes, environmental pressures, and shifting agricultural practices affect farmers' mental health needs and help-seeking behaviors. Research should explore innovative service delivery models that can adapt to these changing conditions while remaining culturally responsive and accessible.

Ultimately, advancing mental health equity for agricultural workers requires sustained commitment to research that bridges academic inquiry with community needs and practical solutions. By addressing current methodological limitations and pursuing comprehensive research agendas, future studies can contribute to the development of

more effective, culturally responsive, and sustainable mental health services for farming communities. This work is essential not only for enhancing individual well-being, but also for strengthening the resilience of agricultural communities and ensuring the sustainability of food systems for future generations.

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References

1. Hagen BN, Albright A, Sargeant J, et al. Research trends in farmers' mental health: a scoping review of mental health outcomes and interventions among farming populations worldwide. PLOS ONE. 2019 Dec;14(12):e0225661. https://doi.org/10.1371/journal.pone.0225661 PMid:31805070 PMCid:PMC6894791
2. Daghagh Yazd S, Wheeler SA, Zuo A. Key risk factors affecting farmers' mental health: a systematic review. Int J Environ Res Public Health. 2019;16(23):4849. https://doi.org/10.3390/ijerph16234849 PMid:31810320 PMCid:PMC6926562
3. Klingelschmidt J, Milner A, Khireddine-Medouni I, et al. Suicide among agricultural, forestry, and fishery workers: a systematic literature review and meta-analysis. Scand J Work Environ Health. 2018;44(1):3–15. https://doi.org/10.5271/sjweh.3682 PMid:29085951
4. Le TN, Zhang W, Brown E, et al. Risks and protective factors for depression and suicide among Hawai'i agricultural producers. J Agromedicine. 2023;28(4):734–45. https://doi.org/10.1080/1059924X.2023.2226131 PMid:37767730
5. Le TN, Brown EL. Farmer stress and coping: qualitative study from Hawai'i. OBM Integr Complement Med. 2024;9(4):070. https://doi.org/10.21926/obm.icm.2404070
6. La Croix S, Mak J. Reviving agriculture to diversify Hawai'i's economy. University of Hawaii, UHERO, 2021. Available at: https://uhero.hawaii.edu/reviving-agriculture-to-diversify-hawaiis-economy/.
7. Hawai'i State Department of Health (HDOH). Adult Mental Health Division (AMHD) website. Honolulu, HI: HDOH, 2024. Available at: https://health.hawaii.gov/amhd.
8. Kaholokula JK, Miyamoto RES, Hermosura AH, et al. The behavioral health consequences of prejudice, stigma, and oppression on Native Hawaiians. In: Benuto LT, Duckworth MP, Masuda A, et al, eds. Prejudice, stigma, privilege, and oppression: a behavioral health handbook. Charm, Switzerland: Springer International Publishing, 2020. https://doi.org/10.1007/978-3-030-35517-3_7

9. Benuto LT, Duckworth MP, Masuda A, et al, eds. Prejudice, stigma, privilege, and oppression: a behavioral health handbook. Charm, Switzerland: Springer International Publishing, 2020.
https://doi.org/10.1007/978-3-030-35517-3
10. Swanson DA. A new estimate of the Hawaiian population for 1778, the year of first European contact. Hulili Multidiscip Res Hawaiian Well-Being. 2019;11(2):151–68.
https://doi.org/10.2139/ssrn.3917957
https://doi.org/10.37712/hulili.2019.11-2.06
11. Riley L, Suʻesuʻe A, Hulama K, et al. Ke ala i ka Mauliola: Native Hawaiian youth experiences with historical trauma. Int J Environ Res Public Health. 2022;19(19):12564.
https://doi.org/10.3390/ijerph191912564
PMid:36231865 PMCid:PMC9566730
12. Office of Minority Health. Mental and behavioral health—Native Hawaiians/Pacific Islanders. Washington, DC: U.S. Department of Health and Human Services, 2024. Available at: https://minorityhealth.hhs.gov/mental-and-behavioral-health-native-hawaiianspacific-islanders.
13. Lim E, Gandhi K, Siriwardhana C, et al. Racial and ethnic differences in mental health service utilization among the Hawaii Medicaid population. J Ment Health. 2019;28(5):536–45.
https://doi.org/10.1080/09638237.2018.1521917
PMid:30417731 PMCid:PMC6510646
14. United States Census Bureau. QuickFacts: Hawaii. Washington, DC: U.S. Census Bureau, 2021. Available at: https://www.census.gov/quickfacts/HI.
15. Ta VM, Juon HS, Gielen AC, et al. Disparities in use of mental health and substance abuse services by Asian and Native Hawaiian/Other Pacific Islander women. J Behav Health Serv Res. 2008;35(1):20–36.
https://doi.org/10.1007/s11414-007-9078-y
PMid:17647106 PMCid:PMC2268612
16. Snow KSR, Merrill K, Macintosh J, et al. Mental health literacy in Polynesian Native Hawaiian and Other Pacific Islanders. Int J Ment Health Nurs. 2024;33(3):683–92.
https://doi.org/10.1111/inm.13275
PMid:38071505
17. U.S. Census Bureau. American Community Survey 5-Year Estimates (Table 1.43): Language spoken at home by ability to speak English for the population 5 years and over, 2018–2022. Washington, DC: U.S. Census Bureau, 2023. Available at: https://files.hawaii.gov/dbedt/economic/databook/2023-individual/01/014323.pdf#:~:text=Source%3A%20U.S.%20Census%20Bureau%2C%202018,the%20Hawaii%20State%20Department%20of .
18. State of Hawaii Department of Business, Economic Development & Tourism (DBEDT). Detailed race group characteristics in Hawaii: 2021 American Community Survey 1-Year Estimates. Honolulu, HI: State of Hawaii, 2023. Available at: https://files.hawaii.gov/dbedt/economic/reports/Detailed-race-characteristics_ACS2021.pdf.
19. Hawai'i Department of Agriculture. Language access plan for individuals with limited English proficiency. Honolulu, HI: State of Hawai'i Department of Agriculture, 2021.
20. Tuazon VE, Gonzalez E, Gutierrez D, et al. Colonial mentality and mental health help-seeking of Filipino Americans. J Couns Dev. 2019;97(4):352–63.
https://doi.org/10.1002/jcad.12284
21. Chaudhary G, DeCamp J, Hernandez-Tamayo C, et al. AMHD 2021Community

Report. Honolulu, HI: Hawai'i State Department of Health, Adult Mental Health Division (AMHD), 2022. Available at: https://health.hawaii.gov/amhd/files/2022/10/AMHD_CommunityReport_2021_FINAL.pdf.
22. United Health Foundation. America's Health Rankings 2022 Annual Report: Hawai'i State summary. Minnetonka, MN: United Health Foundation, 2022. Available at: https://hhdw.org/na-americas-health-rankings-2022-annual-report/.
23. Juarez R, Le B, Bond-Smith D, et al. Socioeconomic determinants of mental health outcomes among Hawaii adults. Front Public Health. 2025;13:1526687. https://doi.org/10.3389/fpubh.2025.1526687 PMid:40066005 PMCid:PMC11891065
24. United States Department of Agriculture (USDA). 2017 Census of Agriculture: Hawai'i State profile. Washington, DC: USDA, 2019. Available at: https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Hawaii/index.php.
25. Leung P, Loke M. Economic impacts of increasing Hawaii's food self-sufficiency. Honolulu, HI: University of Hawaii, 2008.
26. Lyte B. How Hawaii squandered its food security—And what it will take to get it back. Honolulu, HI: Honolulu Civil Beat, 2021. Available at: https://www.civilbeat.org/2021/04/how-hawaii-squandered-its-food-security-and-what-it-will-take-to-get-it-back/.
27. Wu Y, Uchima O, Browne C, et al. Healthy life expectancy in 2010 for Native Hawaiian, White, Filipino, Japanese, and Chinese Americans living in Hawai'i. Asia Pac J Public Health. 2019;31(7):659–70. https://doi.org/10.1177/1010539519875614 PMid:31537119 PMCid:PMC6895413
28. Centers for Medicare & Medicaid Services (CMS). Federally Qualified Health Centers (FQHC) Center. Washington, DC: CMS, 2023. Available at: https://www.cms.gov/center/provider-type/federally-qualified-health-centers-fqhc-center.
29. National Association of Community Health Centers (NACHC). The secret of community health centers? They deliver superior outcomes. Bethesda, MD: NACHC, 2022. Available at: https://www.nachc.org/the-secret-of-fqhcs-they-deliver-superior-outcomes/.
30. Staloff J, Cole MB, Frogner B, et al. National and state-level trends in mental health and substance use disorder services at Federally Qualified Health Centers, 2012–2019. J Community Health. 2024 Apr;49(2):343–54. https://doi.org/10.1007/s10900-023-01293-7 PMid:37985556
31. Wright B. Who governs federally qualified health centers? J Health Polit Policy Law. 2013 Feb;38(1):27–55. https://doi.org/10.1215/03616878-1898794 PMid:23052684 PMCid:PMC5602556
32. Lee EK, Donley G, Ciesielski TH, et al. Spatial availability of Federally Qualified Health Centers and disparities in health services utilization in medically underserved areas. Soc Sci Med. 2023 Oct;328:116009. https://doi.org/10.1016/j.socscimed.2023.116009 PMid:37301106
33. National Association of Community Health Centers (NACHC). Hawaii: health center fact sheet. Bethesda, MD: NACHC, 2025. Available at: https://www.nachc.org/nachc-content/uploads/2025/01/State-Fact-Sheet-Hawaii.pdf.
34. Hawaii Primary Care Association (HPCA). HPCA annual report 2024. Honolulu, HI: HPCA, 2024. Available at: https://www.hawaiipca.net/reports/annual-report-2024.

35. Health Resources and Services Administration (HRSA). Hawaii Health Center Program Uniform Data System (UDS) data. Washington, DC: HRSA, U.S. Department of Health and Human Services, 2024. Available at: https://data.hrsa.gov/tools/data-reporting/program-data/state/HI.
36. Health Resources and Services Administration (HRSA). What is a health center? Washington, DC: HRSA, 2024. Available at: https://bphc.hrsa.gov/about/what-is-a-health-center.
37. Rural Health Information Hub (RHIhub). Federally Qualified Health Centers. Grand Forks, ND: RHIhub, 2023. Available at: https://www.ruralhealthinfo.org/topics/federally-qualified-health-centers.
38. Le T, Ferch C. Farm and Ranch Stress Assistance Network (FRSAN)—Hawai'i State Plan to NIFA FY 2021 [Internet]. Washington, DC: U.S. Department of Agriculture, National Institute of Food and Agriculture, 2021. Available at: https://portal.nifa.usda.gov/web/crisprojectpages/1027082-farm-and-ranch-stress-assistance-network-frsan—hawaii-state-plan-to-nifa-fy-2021.html.
39. Auxier AM, Hirsh HK, Warman MK. Behavioral health in federally qualified health centers: what practitioners and researchers need to know. Prof Psychol Res Pract. 2013 Dec;44(6):391–7.
https://doi.org/10.1037/a0035039
40. Zhou BY, Kole J. Assessing knowledge and experience of integrated behavioral health among patients with limited English proficiency at a diverse, urban federally qualified health center. J Immigr Minor Health. 2022;24(6):1237–44.
https://doi.org/10.1007/s10903-021-01319-z
PMid:35059949
41. Jara C, Phan N. Understanding Hawaiian identity and well-being to improve mental health outcomes for Hawaiian young adults. Hawaii J Health Soc Welf. 2024;83(5):124–31.
https://doi.org/10.62547/HHGI9020
PMid:38716137 PMCid:PMC11070781
42. ESRI. ArcGIS Online. © 2024 Foursquare Labs, Inc. Available at: https://www.arcgis.com/.
43. World Health Organization (WHO). A conceptual framework for action on the social determinants of health. Geneva, Switzerland: WHO, 2010. Available at: https://www.who.int/publications/i/item/9789241500852.
44. Health Resources and Services Administration (HRSA). Find a health center. Washington, DC: U.S. Department of Health and Human Services, 2025. Available at: https://findahealthcenter.hrsa.gov/.
45. U.S. Census Bureau. American Community Survey 5-Year Estimates, Table C24050: Industry by occupation for the civilian population. Washington, DC: U.S. Department of Commerce, 2022. Available at: https://data.census.gov.
46. U.S. Census Bureau. Zip Code Tabulation Areas (ZCTAs). Washington, DC: U.S. Census Bureau, 2025. Available at: https://www.census.gov/programs-surveys/geography/guidance/geo-areas/zctas.html.
47. Watkins DC. Rapid and rigorous qualitative data analysis: the "RADaR" technique for applied research. Int J Qual Methods. 2017;16(1):1–9.
https://doi.org/10.1177/1609406917712131
48. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349–57.

https://doi.org/10.1093/intqhc/mzm042
PMid:17872937
49. United States Department of Labor. Findings from the quality of and access to health care supplement of the National Agricultural Workers Survey (2019–2020). Washington, DC: United States Department of Labor, 2024. Available at: https://www.dol.gov/sites/dolgov/files/ETA/naws/pdfs/NAWS%20Research%20Brief%201.pdf.
50. AgriSafe Network. Mental health and farm stress training for health professionals. Covington, LA: AgriSafe, 2023. Available at: https://www.agrisafe.org/category/mental-health/.
51. Pobutsky A, Cuaresma C, Kishaba G, et al. The social, cultural, and behavioral determinants of health among Hawai'i Filipinos: The Filipino Healthy Communities Project. Calif J Health Promot. 2015;13(1):1–12.
https://doi.org/10.32398/cjhp.v13i1.1809
52. Kamehameha Schools. Ahupua'a: life in early Hawai'i. Honolulu, HI: Kamehameha Schools Press, 1994.
53. Rudolphi JM, Barnes KL. Farmers' mental health: perceptions from a farm show. J Agromedicine. 2020 Jan;25(1):147–52.
https://doi.org/10.1080/1059924X.2019.1674230
PMid:31581934
54. Daniels SP, Kauahikaua L, Kaio C, et al. Conceptualizing a new system of care in Hawai'i for Native Hawaiians and substance use. Hawai'i J Health Soc Welf. 2022 Dec;81(12 Suppl 3):43–51.
55. Cole M. Disparities in telehealth use during COVID-19 across federally qualified health centers: findings from national survey data. Health Serv Res. 2021 Feb;56(1):29–30.
https://doi.org/10.1111/1475-6773.13759
PMCid:PMC8441433
56. Fraser CE, Smith KB, Judd F, et al. Farming and mental health problems and mental illness. Int J Soc Psychiatry. 2005 Sep;51(4):340–9.
https://doi.org/10.1177/0020764005060844
PMid:16400909
57. Hawai'i State Department of Health. DOH, UH partners join forces to prevent suicide through connection. Honolulu, HI: Hawai'i State Department of Health, 2023. Available at: https://health.hawaii.gov/news/newsroom/doh-uh-partners-join-forces-to-prevent-suicide-through-connection/.
58. Yang KI, Chung-Do JJ, Fujitani L, et al. Advancing community-based participatory research to address health disparities in Hawai'i: perspectives from academic researchers. Hawai'i J Med Public Health. 2019 Mar;78(3):83–8.