Chronic Health Conditions By Mental and Physical Health (Self-Reported)

Hawaiian population

Hawai`i Health Survey

Office of Health Status Monitoring
Hawaii Department of Health
State Registrar and Chief,
A. Onaka, Ph.D.
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HHS

- Introduction to HHS
- Prevalence of Hawaiian – Alone and Part Hawaiian
- Ethnicity distribution for Hawai`i
- Prevalence of selected health conditions
- Associated mental and physical health scores
Hawai`i Health Survey (HHS)

Modeled After National Health Interview Survey (NHIS), CDC
HHS

- House to house survey beginning 1968
- Telephone survey beginning 1996
- Provides intercensal estimates of ethnicity
- Sample data weighted to reflect Hawaii’s:
  - Households – from respondent
  - Adult Population by respondent
  - Population – respondent answers for other household members
Data Presented

- Respondent – Age 18 and older
- Data weighted and adjusted* to Adult Population of Hawai`i

* numbers are adjusted as the homeless, households without telephones, group quarters, and island of Ni`ihau are not included.
Methods

- Rolling Two Year Average
- HHS 1998-2003
- Average weight applied
- Data analysis
  - SAS
  - SUDAAN for variance, 95% confidence limits estimates, and regression analysis for single year estimates.
Hawaiian

Survey question – Of what ethnic background is your father? … mother?

Four possible responses for each parent (they can also specify other)
<table>
<thead>
<tr>
<th>ETHNICITY/RACE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AIAN</td>
<td>Korean</td>
</tr>
<tr>
<td>Asian Indian</td>
<td>Mexican</td>
</tr>
<tr>
<td>Black</td>
<td>Portuguese</td>
</tr>
<tr>
<td>Chinese</td>
<td>Puerto Rican</td>
</tr>
<tr>
<td>Filipino</td>
<td>Samoan/Tongan</td>
</tr>
<tr>
<td>Guamanian/Chamorro</td>
<td>Vietnamese</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>White</td>
</tr>
<tr>
<td>Japanese</td>
<td>Other</td>
</tr>
</tbody>
</table>
ETHNICITY/ RACE

Alone – Only one ethnicity/race listed for parents: Hawaiian Alone

Part – More than one ethnicity/race listed for parents: Hawaiian Part
Sample and Weighted and Adjusted Numbers for Adults in Hawai`i By Two Year Rolling Average, HHS

<table>
<thead>
<tr>
<th>Two Years Averaged</th>
<th>Hawaiian Alone</th>
<th>Hawaiian Part</th>
<th>Total Sample n</th>
<th>Adults*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998/1999</td>
<td>256</td>
<td>1,256</td>
<td>8,733</td>
<td>851,724</td>
</tr>
<tr>
<td>1999/2000</td>
<td>301</td>
<td>1,550</td>
<td>10,233</td>
<td>859,260</td>
</tr>
<tr>
<td>2000/2001</td>
<td>295</td>
<td>1,802</td>
<td>11,555</td>
<td>872,072</td>
</tr>
<tr>
<td>2001/2002</td>
<td>255</td>
<td>1,670</td>
<td>10,917</td>
<td>896,156</td>
</tr>
<tr>
<td>2002/2003</td>
<td>181</td>
<td>1,628</td>
<td>10,335</td>
<td>921,126</td>
</tr>
</tbody>
</table>

*Weighted and Adjusted
Percent Alone and Part Hawaiian By Two Year Rolling Average for Adults in Hawai`i, HHS

Weighted and adjusted numbers

DOH, OHSM, HHS
Percent of Other Ethnicities (All Else) By Two Year Rolling Average, HHS

Weighted and adjusted numbers
Chronic Health Conditions

Respondents are asked: "Have you been told by a physician or medical professional that you have arthritis?" ...asthma, diabetes, high blood cholesterol, and hypertension.

Obese from Body Mass Index BMI –

- Weight / height (kg/m²).
- Values 30 and above

- National Heart, Lung, and Blood Institute (NHLBI) (June 17, 1998) "clinical definition"
Prevalence of Asthma By Ethnicity, Two Year Rolling Average, Adults-HHS

Weighted and adjusted numbers
Age adjusted
Prevalence of Diabetes By Ethnicity, Two Year Rolling Average, Adults-HHS

Weighted and adjusted numbers
Age adjusted

DOH, OHSM, HHS
**Prevalence of HBP By Ethnicity, Two Year Rolling Average, Adults-HHS**

Weighted and adjusted numbers  
Age adjusted

NHIS US ADULTS 2002
Prevalence of Obesity By Ethnicity, Two Year Rolling Average, Adults-HHS

Weighted and adjusted numbers
Age adjusted
Prevalence of HBC By Ethnicity, Two Year Rolling Average, Adults-HHS

Weighted and adjusted numbers Age adjusted

DOH, OHSM, HHS
Prevalence of Arthritis By Ethnicity, Two Year Rolling Average, Adults-HHS

NHIS US ADULTS 2002

Weighted and adjusted numbers  
Age adjusted

DOH, OHSM, HHS
Chronic Disease Prevalence: Adult Hawaiians Compared to All Else (Single Year Comparison), HHS

<table>
<thead>
<tr>
<th>Significant higher for Hawaiians, $\alpha=.05$</th>
<th>Not Significantly higher for Hawaiians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>HBC</td>
</tr>
<tr>
<td>HBP</td>
<td>Arthritis</td>
</tr>
<tr>
<td>Asthma</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
</tr>
</tbody>
</table>
Mental and Physical Health Scores

How does the higher prevalence of chronic health conditions among Hawaiians affect self reported mental and physical health?
SF-12® Questions, v. 1

Quality Metric

Twelve self reported general health questions on:
- limitations caused by physical and/or emotional problems,
- pain limiting activities,
- limitations to amount and type of work,
- and limitations in social activities due to health problems
MCS and PCS Summary Scores, v1

- PCS (physical component summary scale)
- MCS (mental component summary scale)
- A lower PCS or MCS score indicates poorer self-reported mental or physical health
- Standardized normal distribution (mean=50, SD=10 in the 1998 general U.S. population)
- SF-12® manual.

Average PCS Score for Hawaiians (Alone and Part) and All Else, Two Year Rolling Average, Adults-HHS

<table>
<thead>
<tr>
<th>Year</th>
<th>Hawaiian PCS</th>
<th>All Else PCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998/1999</td>
<td>51.2</td>
<td>52.2</td>
</tr>
<tr>
<td>1999/2000</td>
<td>51.6</td>
<td>52.3</td>
</tr>
<tr>
<td>2000/2001</td>
<td>51.6</td>
<td>52.3</td>
</tr>
<tr>
<td>2001/2002</td>
<td>51.0</td>
<td>51.7</td>
</tr>
<tr>
<td>2002/2003</td>
<td>50.7</td>
<td>51.5</td>
</tr>
</tbody>
</table>

NATIONAL AVERAGE, 1998

Weighted and adjusted numbers
Age adjusted
Average MCS Score for Hawaiians (Alone and Part) and All Else, Two Year Rolling Average, Adults-HHS

<table>
<thead>
<tr>
<th>Years</th>
<th>Hawaiian MCS</th>
<th>All Else MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998/1999</td>
<td>52.8</td>
<td>53.8</td>
</tr>
<tr>
<td>1999/2000</td>
<td>53.2</td>
<td>54.2</td>
</tr>
<tr>
<td>2000/2001</td>
<td>53.7</td>
<td>54.2</td>
</tr>
<tr>
<td>2001/2002</td>
<td>53.4</td>
<td>54.3</td>
</tr>
<tr>
<td>2002/2003</td>
<td>53.7</td>
<td>54.4</td>
</tr>
</tbody>
</table>

Weighted and adjusted numbers
Age adjusted
Average PCS By MCS Score Diagram

Average PCS
US 1998

1 Below Average PCS

2 Above Average PCS and MCS

3 Below Average PCS and MCS

4 Below Average MCS

PCS

MCS

DOH, OHSM, HHS
Asthma By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average HHS 1998 - 2003

1 Below Average PCS
2 Above Average PCS and MCS
3 Below Average PCS and MCS
4 Below Average MCS

○ Hawaiian Asthma  ● Hawaiian No Asthma

DOH, OHSM, HHS
HBC By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average HHS 1998 - 2003

1. Below Average PCS
2. Above Average PCS and MCS
3. Below Average PCS and MCS
4. Below Average MCS

DOH, OHSM, HHS
HBP By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average
HHS 1998 - 2003

1 Below Average PCS
2 Above Average PCS and MCS
3 Below Average PCS and MCS
4 Below Average MCS

Hawaiian HBP
Hawaiian No HBP

DOH, OHSM, HHS
Diabetes By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average HHS 1998 - 2003

1 Below Average PCS
2 Above Average PCS and MCS
3 Below Average PCS and MCS
4 Below Average MCS

Hawaiian Diabetes, Hawaiian No Diabetes
Arthritis By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average HHS 1998 - 2003

1 Below Average PCS
2 Above Average PCS and MCS
3 Below Average PCS and MCS
4 Below Average MCS

○ Hawaiian Arthritis  ● Hawaiian No Arthritis
Obese By Average PCS and MCS for Adult Hawaiians (Alone and Part), Two Year Rolling Average HHS 1998 - 2003

1 Below Average PCS
2 Above Average PCS and MCS
3 Below Average PCS and MCS
4 Below Average MCS

Hawaiian Obese
Hawaiian Not Obese
Summary – Adult Population

- Hawaiians and All Else
  - Physical health scores decreased from 1998 to 2003
  - Mental health scores increased from 1998 to 2003
- The average MCS and PCS scores for Hawaiians were lower than for All Else for all five two year averages
- PCS and MCS scores on average for Hawaiians were lower when associated with a chronic disease
- Hawaiians with arthritis had the lowest average PCS and MCS when compared to other chronic conditions
- Obesity had the least affect on MCS and PCS for Hawaiians when compared to other chronic conditions
Summary – Adult Population

Several other variables other than the chronic diseases measured are highly associated with decreased PCS and MCS (in addition to age):

- PCS – poverty and marital status
- MCS – gender, poverty, and marital status
### PCS for Adult Hawaiian Population, SUDAAN Regression, HHS 1998-2003

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Degrees of Freedom</th>
<th>Wald F</th>
<th>P-value Wald F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Model</td>
<td>19</td>
<td>8694.7</td>
<td>0.0000</td>
</tr>
<tr>
<td>Model Minus Intercept</td>
<td>18</td>
<td>17.7</td>
<td>0.0000</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>With at least one chronic condition</td>
<td>1</td>
<td>104.7</td>
<td>0.0000</td>
</tr>
<tr>
<td>Year</td>
<td>2</td>
<td>0.1</td>
<td>0.8652</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>1.6</td>
<td>0.2058</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td>1.8</td>
<td>0.1474</td>
</tr>
<tr>
<td>Marital Status</td>
<td>4</td>
<td>2.9</td>
<td>0.0221</td>
</tr>
<tr>
<td>Poverty level (3 levels)</td>
<td>2</td>
<td>12.1</td>
<td>0.0000</td>
</tr>
<tr>
<td>Age Group</td>
<td>5</td>
<td>9.2</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
MCS for Adult Hawaiian Population, SUDAAN Regression, HHS 1998-2003

<table>
<thead>
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<tbody>
<tr>
<td>Overall Model</td>
<td>19</td>
<td>7656.6</td>
<td>0.0000</td>
</tr>
<tr>
<td>Model Minus Intercept</td>
<td>18</td>
<td>8.1</td>
<td>0.0000</td>
</tr>
<tr>
<td>Intercept</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>With at least one chronic condition</td>
<td>1</td>
<td>22.9</td>
<td>0.0000</td>
</tr>
<tr>
<td>Year</td>
<td>2</td>
<td>3.0</td>
<td>0.0523</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>24.9</td>
<td>0.0000</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td>1.8</td>
<td>0.1414</td>
</tr>
<tr>
<td>Marital Status</td>
<td>4</td>
<td>5.9</td>
<td>0.0001</td>
</tr>
<tr>
<td>Poverty level (3 levels)</td>
<td>2</td>
<td>9.5</td>
<td>0.0001</td>
</tr>
<tr>
<td>Age Group</td>
<td>5</td>
<td>8.1</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
Limitations

- Populations not sampled
- Small sample with high variability for Alone Hawaiians
- Self reported chronic disease, mental and physical health scores
- No chronic mental health disease measured
- Only average of PCS and MCS presented
- Comorbidity and other associated variables
http://www.hawaii.gov/health