

1996 Utah Health Status Survey Report

HEALTH STATUS IN UTAH: THE MEDICAL OUTCOMES STUDY SF12

**Bureau of Surveillance and Analysis
Office of Public Health Data**



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Bureau of Surveillance and Analysis
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PREFACE

The information in this report is based on data collected in the 1996 Utah Health Status Survey. The survey represents the third of its type, with previous surveys conducted in 1986 and 1991. It provides information on a variety of topics related to health status and health care delivery systems at statewide and health district levels. These topics are presented in separate reports due to be released in 1997 under the headings listed below.

Health Insurance Coverage
Health Care Access and Utilization
General Health Status: The Medical Out-
comes Study SF12

Socio-Economic Determinants of Health Status
Behavioral Risk Factors: Alcohol, Tobacco
Exercise
Migration

Chronic Medical Conditions
Preventive Health Screening
Unintentional Injuries
Interpersonal Violence
Hearing, Vision, and Speech Disorders
Limitations of Activities
Fertility

The survey was funded by a one-time legislative appropriation and was designed, analyzed, and reported by the Utah Department of Health, Bureau of Surveillance and Analysis. The survey sample was designed to be representative of Utahns, and is perhaps best described as a weighted probability sample consisting of approximately 6,300 households disproportionately stratified by twelve local health districts that cover the entire state.

The Gallup Organization conducted the telephone interviews using computer-assisted random digit dialing techniques. In each household, one adult (age 18 or older) was randomly selected to respond to survey questions about themselves, about the household as a unit, or with regard to each household member. In addition to “core” survey questions that were asked of every household, sets of supplemental questions were administered to different subsets of the overall sample. The survey results were weighted to reflect the age, sex, geographic distribution, and Hispanic status of the population. Selected analyses were adjusted for non-telephone households. The interview process took place over a three month period from June to August, 1996. The cooperation rate was 66.3%. A detailed description of the methodology can be found in the *Technical Notes* section of this report.

The information in this report can be used to facilitate policy and planning decisions. While it is intended for public health program managers, administrators, and other health care professionals in the public and private health care sectors, the report may also be of interest to anyone wishing to inform themselves on the current health situation in Utah.

INTRODUCTION

An understanding of the health status of a population is necessary to plan, implement, describe, and evaluate public health programs that control and prevent adverse health events. A 1988 Institute of Medicine committee,¹ in a report entitled, *The Future of Public Health* (Institute of Medicine, 1988) recommended that...

“...every public health agency regularly and systematically collect, assemble, analyze, and make available information on the health of the community, including statistics on health status, community health needs, and epidemiologic and other studies of health problems.”

The U.S. Public Health Service also stresses the need for accurate and timely public health surveillance data to be available in a usable form, and has included surveillance activities among its *Healthy People 2000 National Health Promotion and Disease Prevention Objectives*. (U.S. Public Health Service, 1991)

Health Status can be measured in a variety of ways, including rates of mortality from various causes, incidence or prevalence of disease and disability, utilization of health care, and self-reports from individuals. Each method has strengths and weaknesses on a variety of dimensions, such as how well it represents the actual current health status of a population, whether it can be applied at the individual level, whether it focuses on the health of individuals in a health care system versus the system itself, and how easy it is to produce and analyze.

The survey included a variety of measures of health status, including disease prevalence, disability, behavioral risk factors, health care utilization, and perceived general health status. One measure in particular, the *Medical Outcomes Study SF-12* (a 12-item short-form health survey) (Ware, Kosinski, & Keller, 1996), was used to summarize the general physical and mental health status of individuals in the survey. The SF-12 measures a person's perceived health on a number of dimensions (e.g., general health status, pain, depression, etc.). It was designed to measure patient outcomes in medical practice and clinical research, to monitor transitions in health status over time for diverse groups, to measure the burden of populations suffering from chronic medical and psychiatric conditions compared to well populations, to evaluate the relative benefits of different treatments, and to compare health outcomes across different health care delivery systems. (McHorney et al., 1993, 1994)

The SF-12 results reported here were derived from the responses of 6,131 randomly-selected adult survey respondents. They have been weighted to represent all persons in Utah age 18 or over.

Health Status in Utah uses the SF-12 as a focal point from which other health conditions and behaviors are viewed. The Summary of Findings is followed by a Highlights section, which presents major findings

¹ In 1970 The Institute of Medicine was chartered by the National Academy of Sciences to examine policy and advise the federal government on matters related to public health. In 1986 the Institute formed The Committee for the Study of the Future of Public Health to examine issues such as the current definition of “Public Health” and the appropriate role of government in assuring the health of the population. The committee's report, entitled The Future of Public Health, was published in 1988. The report concluded that there are three core functions of public health agencies at all levels of government: assessment, policy development, and assurance.

with figures and accompanying text. The statistical estimates used to generate the graphs in the Highlights section are located in the Reference Tables, which also contain additional information that does not appear in the graphs. The Highlights and the Reference Tables are organized around the following topics:

- I. ***Interpreting the SF-12*** compares Utah results on the SF12 with national norms, explores results of the 12 individual SF-12 items, and describes the meaning of the physical health (PCS) and mental health (MCS) composite scale scores. This section is designed to provide Utah norms on the SF-12 and other information to assist persons using the SF-12 in clinical and research settings in Utah.
- II. ***The Influence of Disease and Lifestyle on Quality of Life*** compares the relative quality of life of persons with various health conditions (such as diabetes and heart disease) and lifestyle characteristics (such as smoking and exercise).
- III. ***The Health Status of Populations in Utah*** compares respondent's scores on the SF-12 across various demographic populations in Utah, including groups based on age, sex, education, employment, marital status, Hispanic status, race, income, religion, and geographic area.
- IV. ***A Profile of Utahns With Poor Health Status*** explores the characteristics of respondents with low scores on the SF-12 physical or mental health composite scales using demographic and health system characteristics reported in the *Health Status Survey*.

Readers interested in learning about the survey's sampling design, estimation procedures and weighting schemes may consult the ***Technical Notes: General Technical Background to the 1996 Health Status Survey*** section at the end of the report.

Readers interested in learning more about the background of the SF-12 and SF-36 health status measures may consult the ***Analysis of the SF-12 Scale*** section also in the *Technical Notes* at the end of this report.

SUMMARY OF FINDINGS

- The physical health status of Utahns is similar to the U.S., overall, however it is slightly worse than the U.S. for younger adults, and somewhat better than the U.S. for older adults.
- The mental health status of Utahns was significantly above that of the U.S. sample for every age group.
- Overall, women scored significantly lower on both physical and mental health summary measures. While this finding is consistent with many other self-reported health measures (e.g., BRFSS) it is a dramatically different view than that which is provided by other health status indicators such as death rates and morbidity rates for heart disease. The sex difference seen here is probably due to a combination of factors, including actual health status and differences in response tendencies between men and women.
- Socio-economic status (income and education level) is strongly related to health status. It is unclear whether SES influences health status or health influences educational and income-earning opportunities. A third possibility is that a third factor, such as sense of control over one's destiny, may influence both health status and SES simultaneously. A 1996 Utah Health Status Survey report on socio-economic factors in health status is forthcoming.
- Physical health status was significantly lower for persons with medical conditions, especially for women, and for those with chronic obstructive pulmonary disease, who have had a stroke, or have back or neck problems.
- Persons with below-average physical or mental health status, taken as a group, mirror Utah's population characteristics relatively closely. They are most likely to be women, age 18-34, with a high school diploma or some college, married, working full time, and earning \$15-35 thousand per year.
- Persons with below-average physical or mental health status have more outpatient medical visits, and were more likely to have been hospitalized. This was especially true for older adults (age 65 and over). This information will be useful for predicting future health care system needs as our population ages.

HIGHLIGHTS

- Interpreting the SF-12
- The Influence of Disease and Lifestyle on Quality of Life
- The Health Status of Populations in Utah
- A Profile of Utahns With Poor Health Status

Interpreting the SF-12

One of the problems commonly reported by those who have used the SF12 to measure health status is that the Physical and Mental Health Composite Scale Scores have little intuitive meaning. For instance, what does a score of 42.5 mean? The following section is intended to give the reader a better understanding of the meaning of different scale values by examining the questionnaire items that are used to generate the composite scale scores, and the range of scale scores in Utah.

Because a person's composite scale score traditionally differs over the life span (with age, scores decrease for physical health and increase for mental health), this section also provides mean scores for ten-year age groups. When interpreting a person's score, one should use their age-specific group mean score as a reference point. Scores higher than the mean indicate that a person has better health status than most other persons his or her age, while scores lower than the age group mean indicate poorer health status than most other persons of the same age.

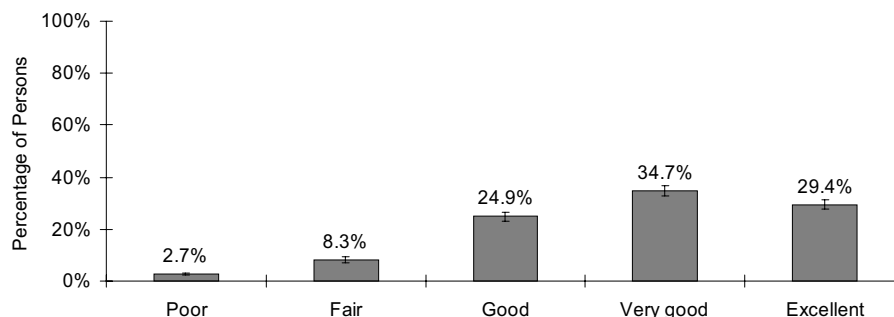
Finally, this section describes the Age-Specific Mean Difference Score. This difference score is the amount by which a person's score differs from their age group mean score. That is, a person with a difference score of -5.5 will score 5.5 points lower than other persons their age -- an indication of somewhat poorer health. The difference score is perhaps the most intuitive way to judge a person's score. Looking at a difference score, it is immediately clear whether a person is more healthy or less healthy than other persons in his or her comparison group. In addition, difference scores can be compared across age groups. That is, a score of -5.5 means the same thing, regardless of a person's age. Finally, difference scores have an additional advantage, because they can be characterized as "average," "below average," or "above average." A finding that a person is "below average" is immediately interpretable, especially compared to just knowing that his or her score is 42.5. Age-Specific Mean Difference Scores have been computed for both the Physical and Mental Health Composite Scales.

Responses to the 12 Survey Questions

- The SF-12 consists of 12 survey questions, shown in the following bar charts. The percentages reflect the distribution of responses of the 6,131 survey respondents, weighted to reflect the age, SES, Hispanic status, and geographic distribution of adults age 18 or over in Utah.
- The 12 bar charts below have been constructed with the highest (healthiest) scores on the right and the lowest scores on the left.
- The 12 items include questions about both physical and mental health. A weighted sum of all 12 items is used in creating an individual's physical and mental health composite scale scores. The difference in the two scales depends on how much weight is given to each item. (For additional information, see Ware, Kosinski & Keller, 1995, and the technical appendix at the back of this report.)
- In the pages that follow, the 12 items have been organized according to the eight subdomains of health status measured by the SF-12.

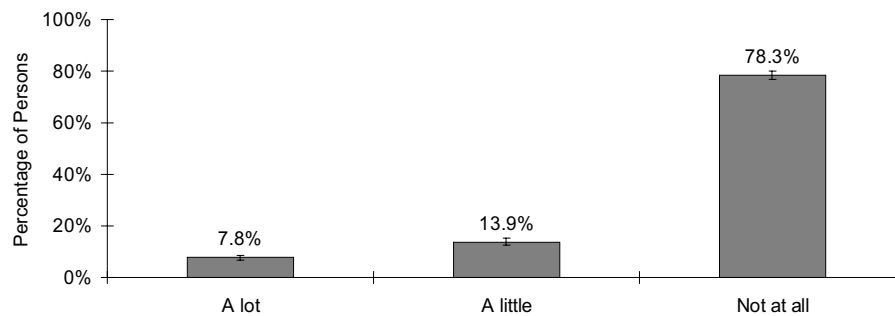
General Health Subdomain

In general, would you say your health is excellent, very good, good, fair, or poor?

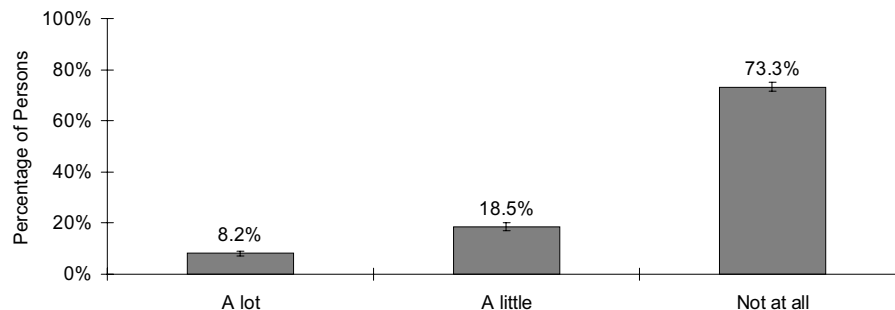


Physical Functioning Subdomain

Does YOUR HEALTH NOW LIMIT YOU IN MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf? Would you say you are limited a lot, a little, or not at all?

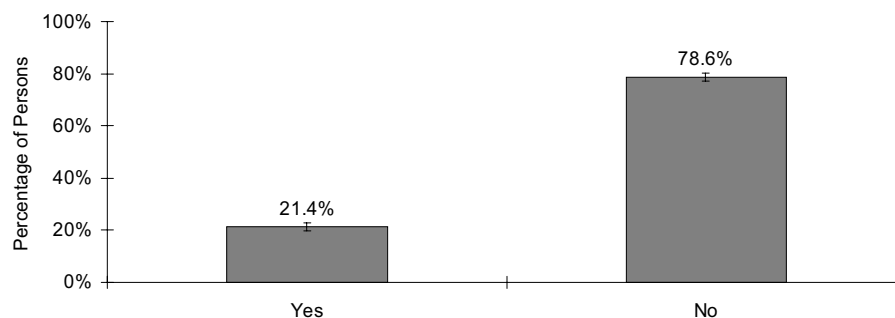


How about CLIMBING SEVERAL FLIGHTS OF STAIRS? Would you say your health limits you a lot, a little, or not at all?

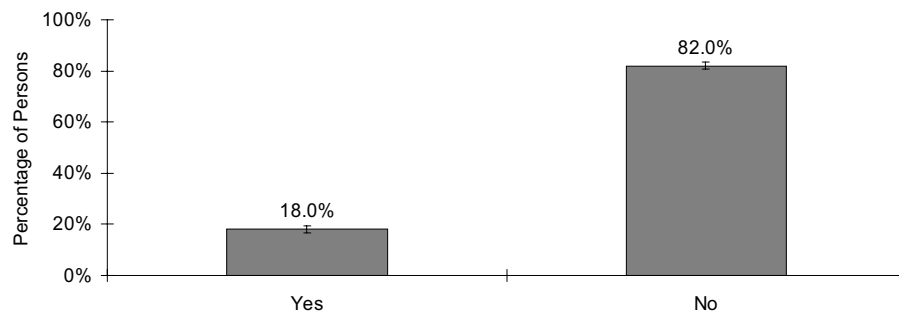


Role Functioning (Physical) Subdomain

Thinking about the past four weeks, have you ACCOMPLISHED LESS than you would like AS A RESULT OF YOUR PHYSICAL HEALTH?

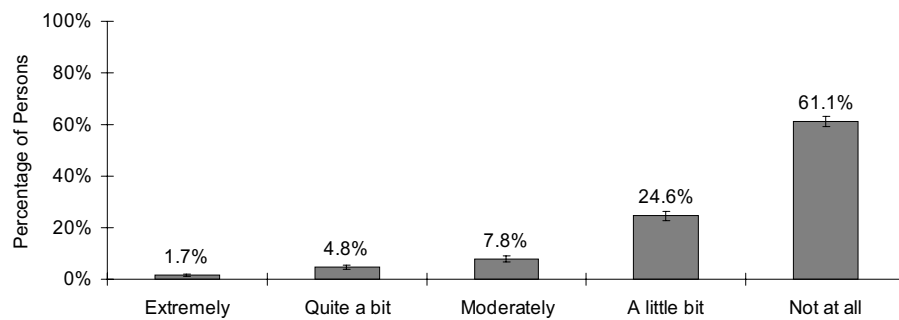


During the past four weeks, were you limited in the KIND of work or other activities you could do as a result of your physical health?



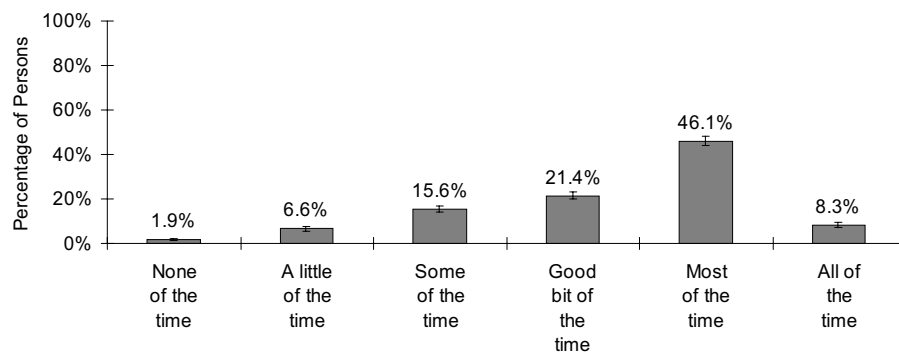
Bodily Pain Subdomain

During the past four weeks, how much did PAIN interfere with your normal work including both work outside the home and housework, would you say (*read responses*)?



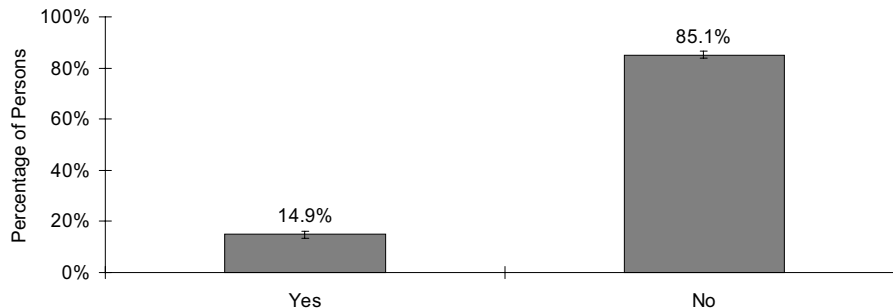
Vitality Subdomain

How much of the time during the PAST FOUR WEEKS did you have a lot of energy? Would you say (*read responses*)?

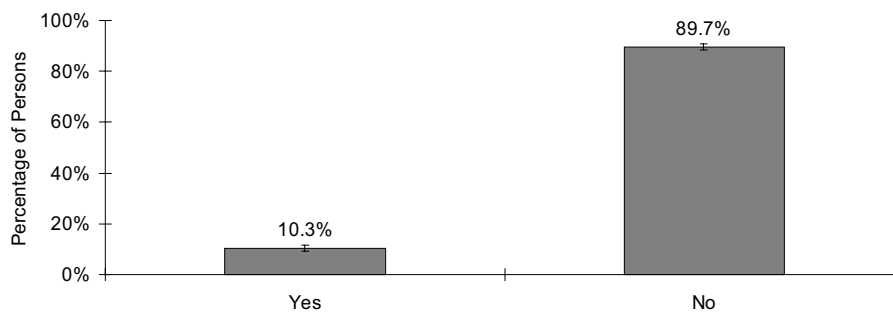


Role Functioning (Emotional) Subdomain

In the past four weeks, did you ACCOMPLISH LESS than you would like AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?

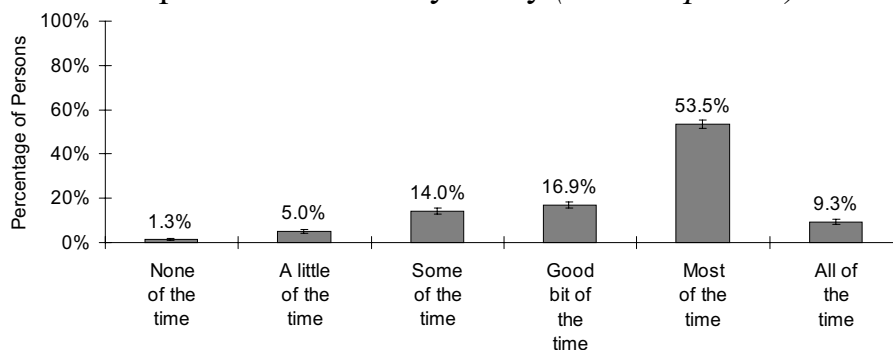


During the last four weeks, did you have trouble doing work or other activities as CAREFULLY as usual AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?

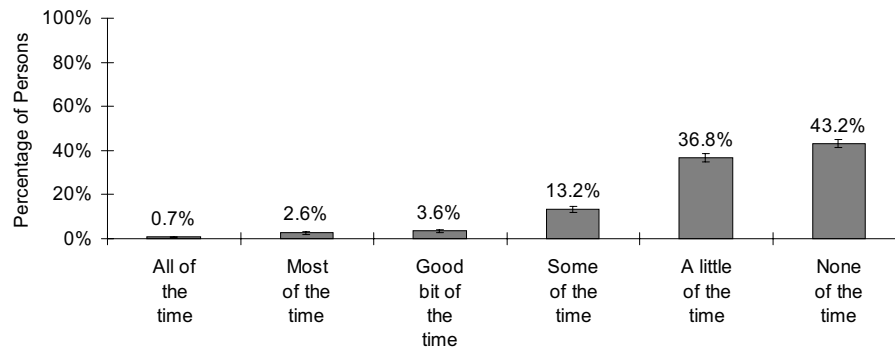


Mental Health Subdomain

How much of the time during the past four weeks have you felt calm and peaceful? Would you say (*read responses*)?

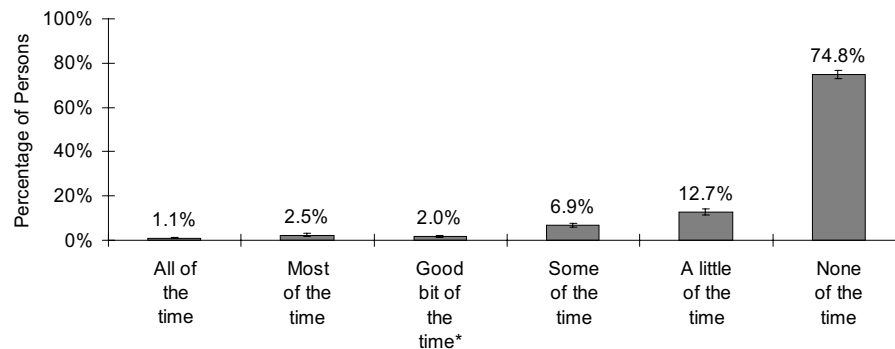


How much of the time during the past four weeks have you felt downhearted and blue? *(If necessary, read responses)*



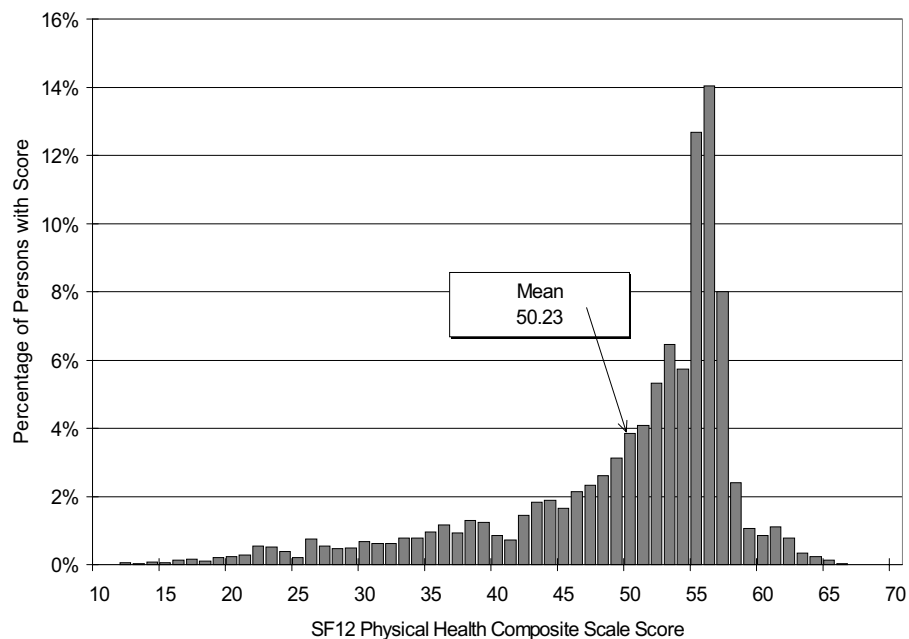
Social Functioning Subdomain

During the last four weeks, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities, like visiting with friends, relatives, etc.? *(If necessary, read responses)*

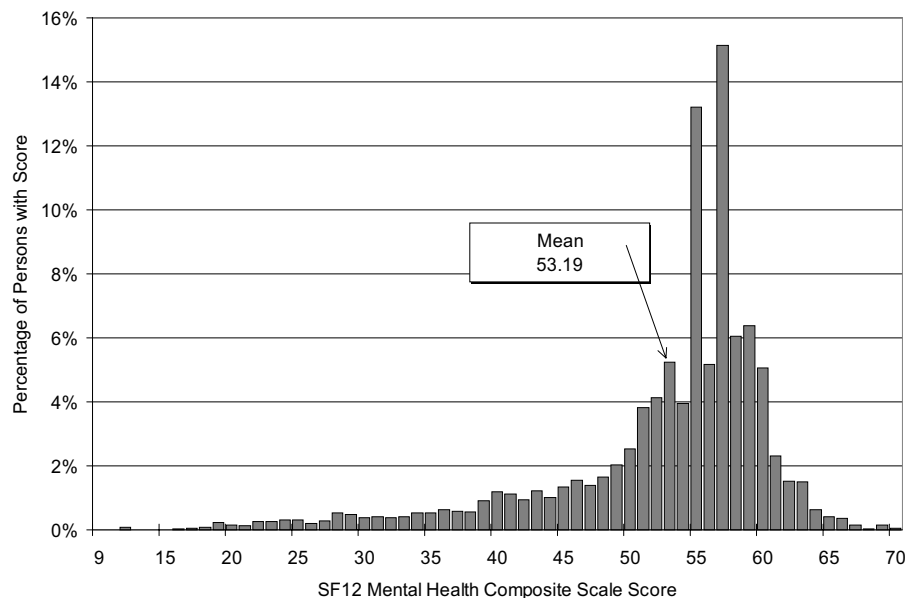


* This response alternative was unintentionally added to the social functioning item. Its inconclusion precludes absolute comparability to other SF-12 results. In practice, however, our analyses and comparisons with other Utah survey results indicate that its inclusion had a negligible effect on the data distribution and on SF-12 summary scale values.

Medical Outcomes Study SF12 Physical Health Composite Scale Scores: Utahns Age 18 or Over, 1996

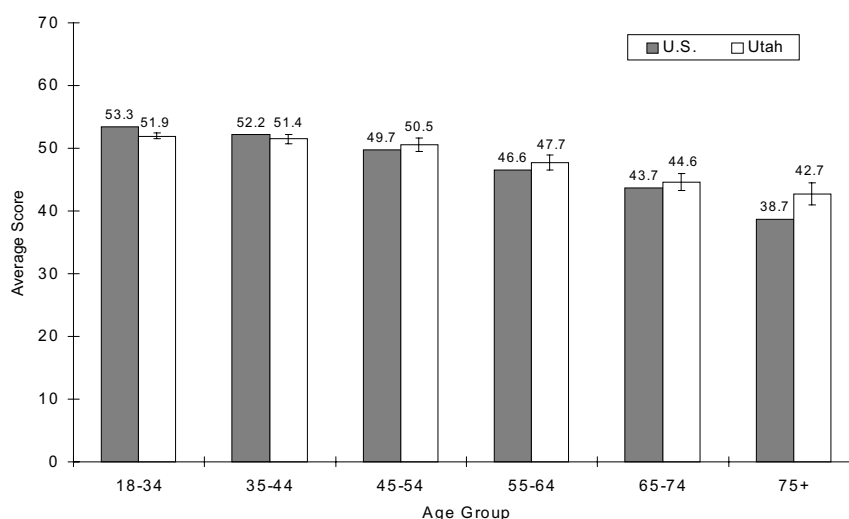


Medical Outcomes Study SF12 Mental Health Composite Scale Scores: Utahns Age 18 or Over, 1996

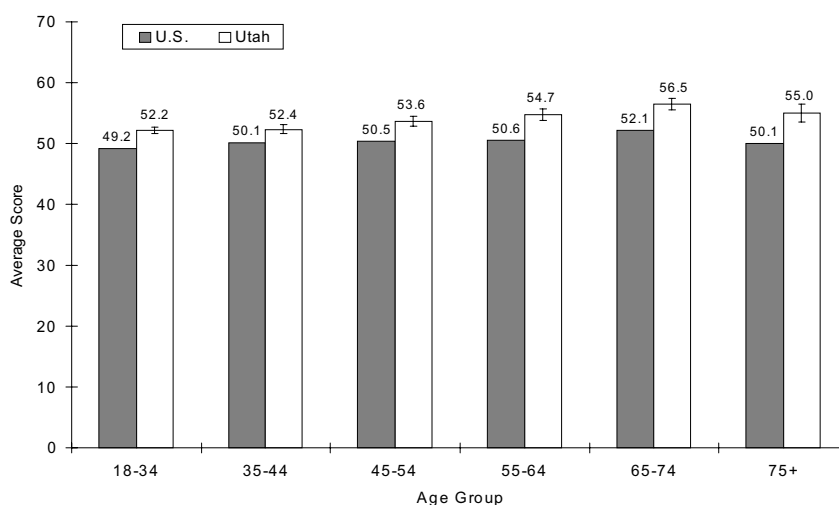


- **Both Physical and Mental Health Composite Scales combine the 12 items in such a way that they compare to a national norm of a mean score of 50.0 and a standard deviation of 10.0.**
- **In Utah, the mean (average) scores are slightly above 50. Utahns scored significantly above the U.S. population on the mental health summary measure, but not on the physical health summary measure.**

Comparison of Utah and U.S. Physical Health Composite Scale (PCS12) Scores: Utah 1996, U.S. 1995*



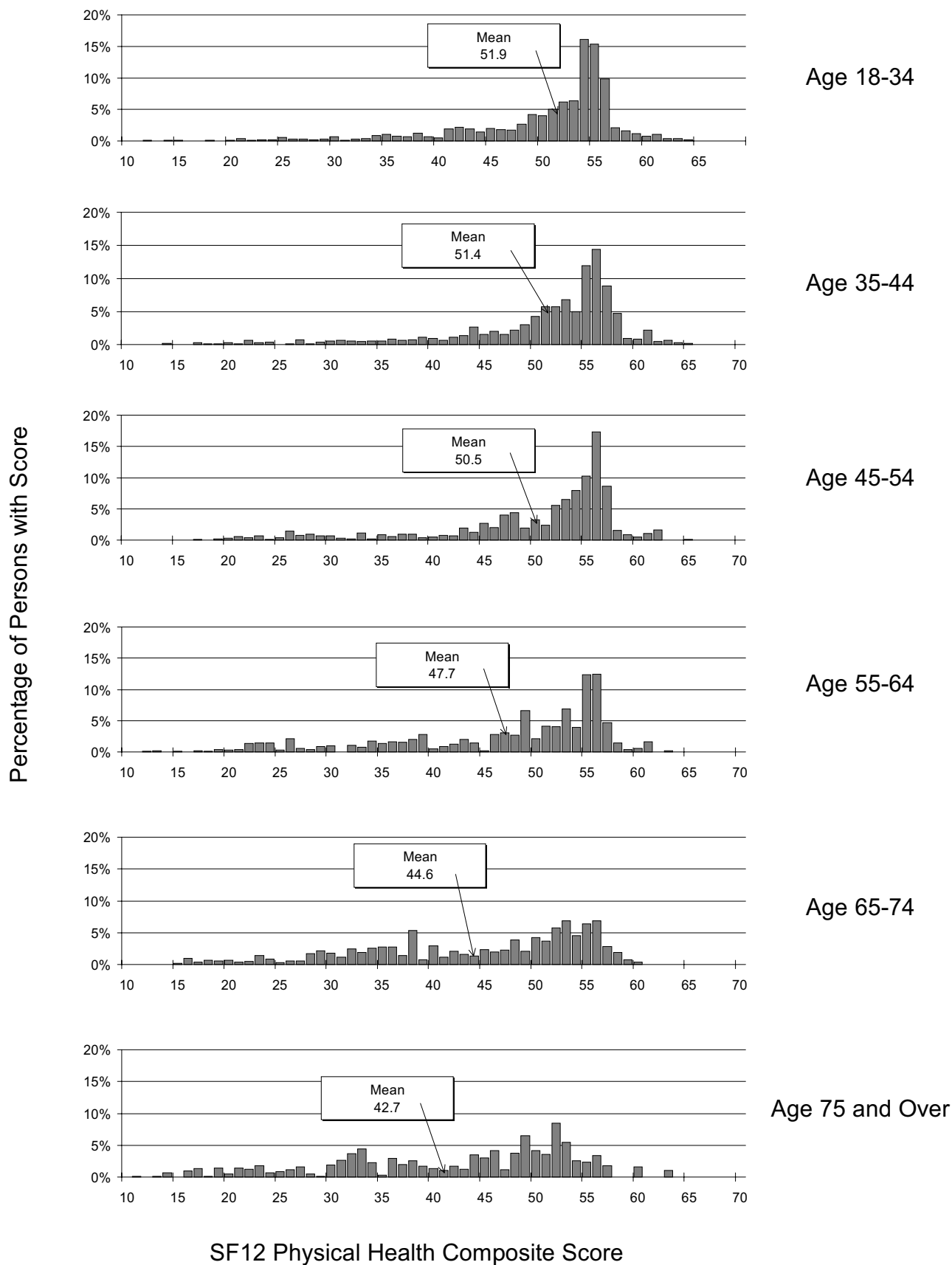
Comparison of Utah and U.S. Mental Health Composite Scale (PCS12) Scores: Utah 1996, U.S. 1995*



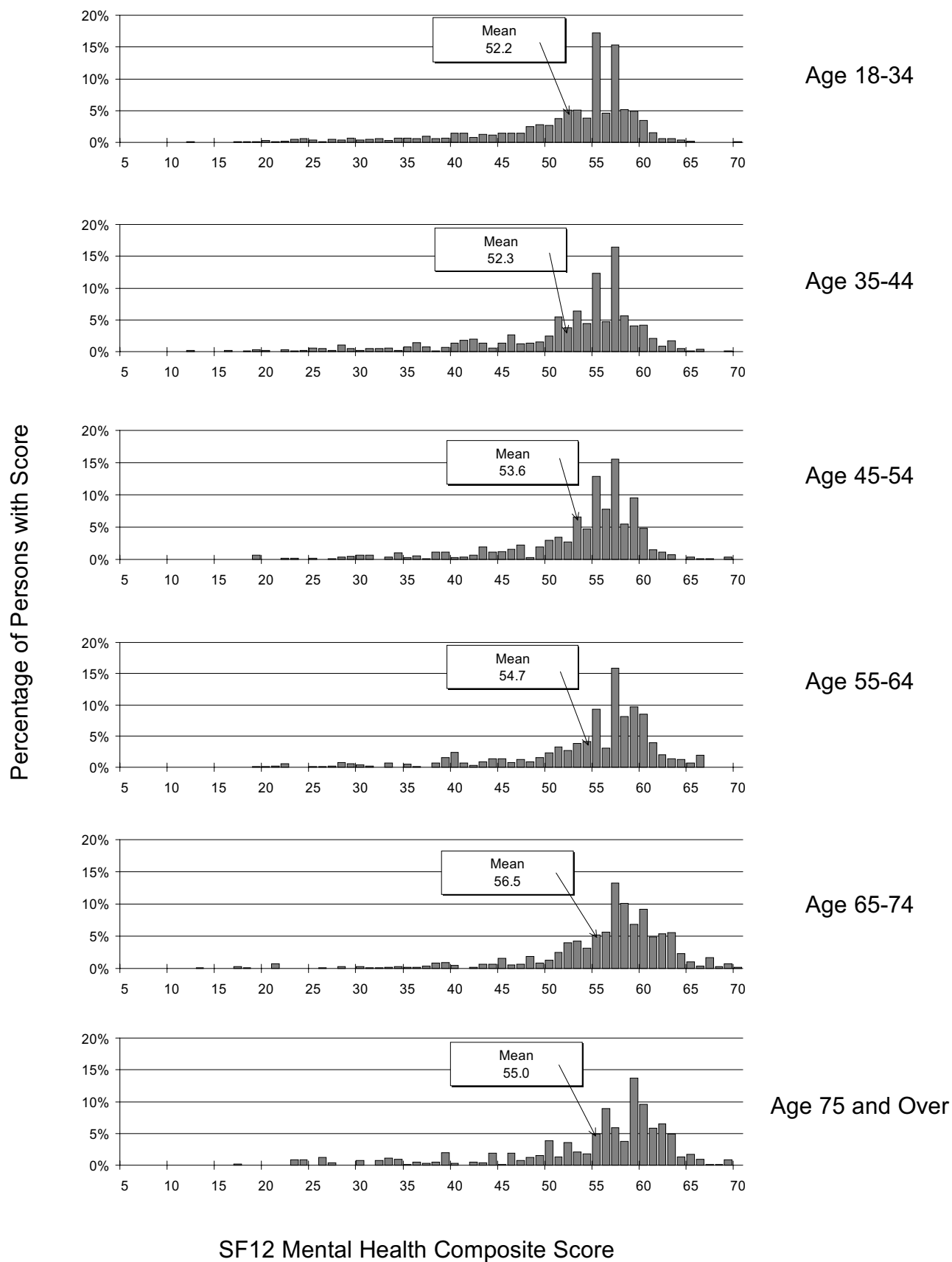
*U.S. norms as reported in Ware, Kosinski, & Keller, 1995.

- **With age, persons tend to score lower on the physical health scale, but better on the mental health scale. This is a robust finding that can be found in other populations, and using other measurement tools. Since there are systematic age differences in scores, it is important to interpret a person's score in the context of other persons near their same age.**
- **Although Utahns' scores on the Physical Health Composite Scale were similar to U.S. scores overall, there was a trend such that younger persons scored lower and older persons scored higher than their U.S. counterparts. Will Utah's health status advantages erode in the future as our younger generations age?**
- **Utahns' scores on the Mental Health Composite Scale are significantly higher than the U.S. scores for every age group.**

Medical Outcomes Study SF12 Physical Health Composite Scale Scores by Age Group: Utahns Age 18 or Over, 1996



Medical Outcomes Study SF12 Mental Health Composite Scale Scores by Age Group: Utahns Age 18 or Over, 1996

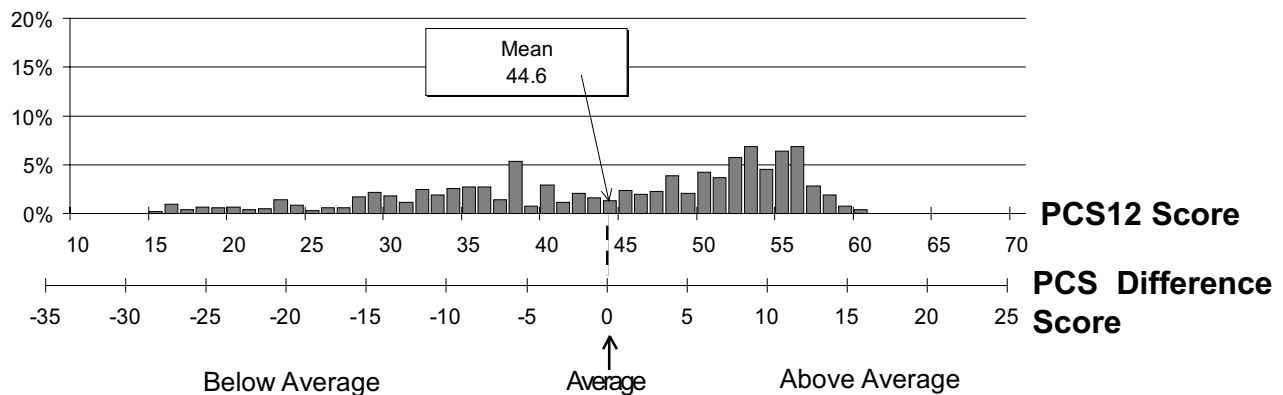


Assigning Meaning to the PCS12 and MCS12 Summary Scores

Computing Difference Scores

- Difference scores can be used to help interpret the meaning of the scale values. The difference score is the difference between a person's score and the mean (average) score for his or her age group.
- A positive score means the person is healthier than average. A negative score means a person is less healthy than average.

Age 65-74



Establishing Cut-off Points for Exceptionally Good and Poor Health

In addition to knowing whether a person's score is above or below average, it is also helpful to know whether the score is significantly above or below average. If a person's physical health difference score is negative but very close to zero, they should probably be considered in "average" health. However, if a person's physical health difference score is hovering around minus 20, they should probably be considered "below average," or in poor health. This section explores some methods for deriving cut-off points that define where average ends and below average (and above average) begins.

1. Statistical Methods for Establishing Cut-off Points.

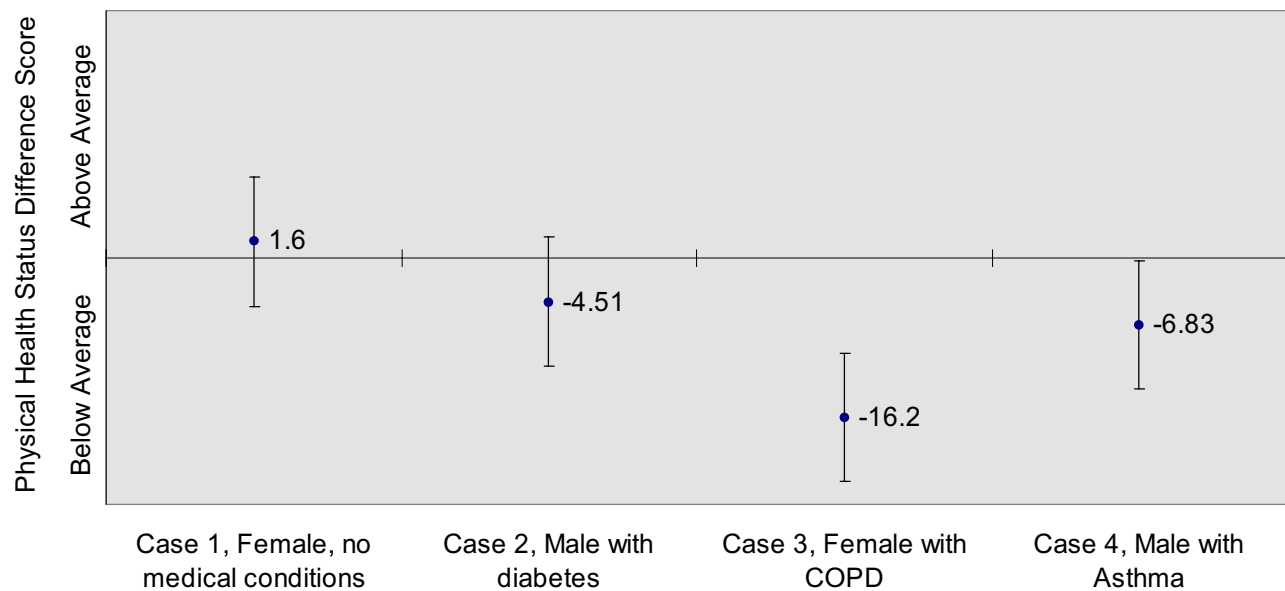
Statistical methods for establishing cut-off points all rely on measures of variability (such as standard deviation and standard error). These measures use confidence intervals to define whether the individual or the group has a score that could be construed as "the same as" average -- if the confidence interval includes the zero point (the average score) then the score is the same as average, if the confidence interval does not include the zero point, then the score is different from (above or below) average.

Cut-off Points for Individual Scores. The cut-off point for an individual's score is based on a property of the SF-12 scale, called the standard error of measurement. All other things being equal, a person's score is expected to have some normal amount of variation that should not be interpreted as a change in the individual's health status. The 95% confidence interval is 1.96 times

the standard error of measurement. The 95% confidence interval was calculated at ± 6.53 points for the Physical Health Summary Measure (and also for the Physical Health Status Difference Score), and ± 6.11 points for the Mental Health Summary Measure (and Mental Health Status Difference Score).

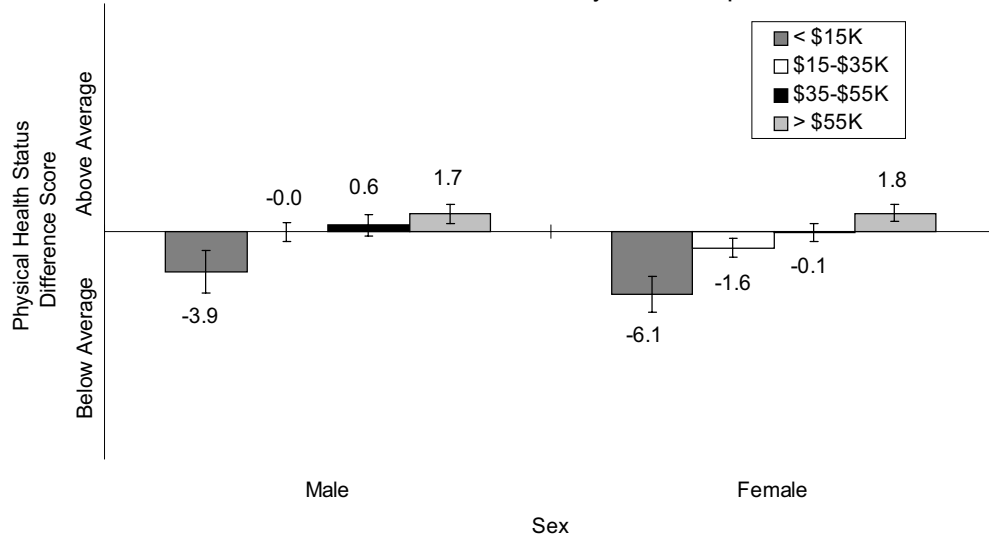
If we apply this approach to an individual's Physical Health Status Difference Score, then the 95% confidence interval for a score that is below -6.53 will not include zero, and will be considered "below average" by this criterion. To demonstrate this process, we can consider the following cases. Case 1 is a female with no chronic medical conditions with a Physical Health Status Difference Score of +1.6, Case 2 is a male diabetic with a score of -4.51, Case 3 is a female with chronic obstructive pulmonary disease with a score of -16.2, and Case 4 is a male with asthma with a score of -6.83. These scores are plotted on Example 1 (below) along with the confidence intervals, all of which are ± 6.53 . Cases 1 and 2 are not significantly different from the average score. Cases 3 and 4, however, are significantly below average.

Example 1. Physical Health Status Difference Scores and Confidence Intervals for Four Hypothetical Individuals



Cut-off Points for Group Means. The mean (or average) score has a measure of deviation, the standard error, that is based on the amount of dispersion or spread of the group's scores around the mean score and the number of persons in that group. Every mean score has its own standard error. In Example 2 (below) group means and standard errors have been plotted for males and females by income category. Males living in households with less than \$15,000 annual income scored significantly below average (the confidence interval does not include zero), males in the middle two income categories had scores in the average range, and males in households with more than \$55,000 annual income had physical health status difference scores that were significantly above average.

Example 2. Physical Health Status Difference Scores and Confidence Intervals for Income by Sex Group Means



2. Criterion Methods for Establishing Cut-off Points.

Criterion-based methods for assigning meaning to various physical and mental health summary scores are based on the relationship between those scores and other “criterion” variables measured in the same population. The criteria used here were selected on the basis of their similarity to those used by The Health Institute. Ware et al. (1994) considered these criteria to be both socially and clinically important. They were measured independently of the PCS and MCS scales.

In the following tables, persons in the Utah survey sample were grouped according to their PCS12 and MCS12 Difference Scores, with the healthiest-scoring group assigned to category number 1, and the least healthy-scoring group assigned to category number 8. The average PCS Difference Scores and summary scale scores for these eight groups are reported in the following table.

Comparison of Eight Physical Health Status Groups: PCS12 Difference and Summary Scores				
Level	PCS12 Difference Score Range	Weighted Sample Size*	PCS12 Difference Score Mean	PCS12 Summary Scale Mean
1	10 & over	298	11.9 ± 0.3	59.2 ± 0.5
2	5 to less than 10	1458	6.7 ± 0.1	56.5 ± 0.2
3	0 to less than 5	2210	3.1 ± 0.1	54.2 ± 0.1
4	less than 0 to -5	825	-2.2 ± 0.2	48.5 ± 0.3
5	less than -5 to -10	513	-7.5 ± 0.2	42.4 ± 0.5
6	less than -10 to -15	297	-12.4 ± 0.3	36.7 ± 0.6
7	less than -15 to -20	179	-17.0 ± 0.3	32.7 ± 0.7
8	less than -20	308	-25.1 ± 0.6	24.4 ± 0.7
		6087		

* The sample used here has been weighted to match the age, sex, Hispanic status and geographic distribution of Utah, and then normalized back to the original sample size. It has not been "inflated" to the population size.

Limitations of usual activities and ability to work for pay are used as criterion variables in the table, below. Limitations in usual activities is more sensitive to health status than is ability to work for pay, as there are many who report that they are limited in their usual activities and do not report that they are unable to work. Level 1 has a small number of cases ($n = 50$), one of whom reported being limited in his or her usual activities.

Judging from this table, a PCS12 Difference Score of <0 would include almost all persons with limitations in usual activities. A more conservative cut-off point would be -10 . Below this point many or most persons have some functional limitation. The choice between an inclusive versus a conservative cut-off point would depend on the user's needs.

**Comparison of Eight Physical Health Status Groups:
Limitations of Activities and Ability to Work**

Level	PCS12 Difference Score Range	Percentage Limited in Usual Activities*	Percentage Reporting "Unable to Work"***
1	10 & over	3.3% \pm 6.5%	0.0% \pm 0.0%
2	5 to less than 10	0.5% \pm 0.6%	0.3% \pm 0.4%
3	0 to less than 5	0.7% \pm 0.9%	0.2% \pm 0.3%
4	less than 0 to -5	13.4% \pm 8.1%	0.8% \pm 0.7%
5	less than -5 to -10	20.2% \pm 12.3%	1.3% \pm 1.0%
6	less than -10 to -15	46.4% \pm 20.2%	7.0% \pm 6.1%
7	less than -15 to -20	45.6% \pm 24.5%	7.6% \pm 5.6%
8	less than -20	73.3% \pm 18.2%	29.8% \pm 9.4%

* Limited in any way in performing usual activities because of an impairment or health problem. Sample n's for this column are approximately one-sixth of the sizes reported in the weighted sample size, above.

** Not employed and unable to work during most of the previous year, adults age 18 to 64.

In the next table, the eight health status groups have been compared on the likelihood of having a chronic medical condition, and medical and hospital visits. Examination of the table reveals that those in the least healthy-scoring groups were significantly more likely to have one or more chronic medical conditions, more doctor visits in the last year, and an overnight hospital stay. The most commonly reported medical condition among the Level 1 group was high blood pressure. The relatively high number of medical visits among the Level 1 members can be accounted for by two survey respondents who reported they had sought mental health services in the last year, and had 50 or more medical visits (possibly mental health visits) during the last 12 months.

The likelihood of a chronic medical condition is 50% or higher for persons with a PCS12 Difference Score below -5 . The likelihood of having been hospitalized in the last year increases only for those with a PCS12 Difference Score below -15 or -20 . Again, it appears that a cut-off point somewhere near level 5 or 6 is suggested by this criterion-based method.

**Comparison of Eight Physical Health Status Groups: Medical Conditions,
Medical Visits and Hospitalization**

Level	PCS12 Difference Score Range	Percentage With One or More Medical Conditions*	Mean Number of Medical Visits, Last 12 Mos.**	Percentage With One or More Hospital Visits, Last 12 Mos.**
1	10 & over	51.4% \pm 8.0%	4.6 \pm 3.7	1.2% \pm 1.3%
2	5 to less than 10	33.6% \pm 3.9%	2.4 \pm 0.5	2.5% \pm 2.5%
3	0 to less than 5	25.8% \pm 2.9%	2.3 \pm 0.6	1.1% \pm 1.0%
4	less than 0 to -5	46.1% \pm 5.5%	4.0 \pm 1.5	3.9% \pm 6.5%
5	less than -5 to -10	50.8% \pm 6.9%	4.1 \pm 3.3	13.7% \pm 18.4%
6	less than -10 to -15	60.9% \pm 8.6%	5.5 \pm 3.4	8.7% \pm 11.0%
7	less than -15 to -20	64.0% \pm 11.5%	9.4 \pm 5.9	16.3% \pm 15.5%
8	less than -20	72.6% \pm 7.7%	10.2 \pm 2.8	11.7% \pm 9.1%

* Medical conditions include asthma, diabetes, chronic obstructive pulmonary disease, arthritis, stroke, heart disease, high blood pressure, hearing impairment, uncorrectable vision, and speech impairment.

** Sample n's for these columns are approximately one-sixth of the sizes reported in the weighted sample size, above.

The following tables examine the same or similar measures for eight levels of the MCS12 Difference Score, as displayed in the following table.

**Comparison of Eight Mental Health Status Groups:
MCS12 Difference and Summary Scores**

Level	MCS12 Difference Score Range	Weighted Sample Size*	MCS12 Difference Score Mean	MCS12 Summary Scale Mean
1	10 & over	130	11.9 \pm 0.4	65.2 \pm 0.6
2	5 to less than 10	1562	6.6 \pm 0.1	59.6 \pm 0.1
3	0 to less than 5	2414	2.8 \pm 0.1	56.0 \pm 0.1
4	less than 0 to -5	844	-2.2 \pm 0.2	51.2 \pm 0.2
5	less than -5 to -10	390	-7.3 \pm 0.3	45.7 \pm 0.3
6	less than -10 to -15	293	-12.1 \pm 0.3	41.0 \pm 0.4
7	less than -15 to -20	179	-17.2 \pm 0.3	35.8 \pm 0.5
8	less than -20	277	-26.5 \pm 0.8	26.5 \pm 0.7

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* The sample used here has been weighted to match the age, sex, Hispanic status and geographic distribution of Utah, and then normalized back to the original sample size. It has not been "inflated" to the population size.

The next table examines limitations of activities and ability to work. While there was no predicted covariation between functional limitations and mental health status, we have presented this table for comparison with the physical health status table on page 17. There was a relatively high proportion (34.8%) of persons in Mental Health Status Level 1 who were limited in their usual activities. This number is based on a very small sample size ($n=23$) and has a correspondingly large confidence interval. The numbers in the rest of this table indicate that there is a relationship between mental health status and limitations in activities, and that it may be reasonable to use the limitations of activities measure as a criterion variable in setting a cut-point for poor mental health. Although this relationship is not as strong as that found between physical health status and limitations in activities, there is still an association between mental health status and limitations in activities, even after controlling for the effects of age and physical health status. The rate of those with limitations in activities increased sharply at level 6 (an MCS12 Difference Score below -10). There is also a weak association between mental health status and ability to work for pay among adults age 18 to 64.

The next table presents clear evidence of an association between mental health status and the

**Comparison of Eight Mental Health Status Groups:
Limitations of Activities and Ability to Work**

Level	MCS12 Difference Score Range	Percentage Limited in Usual Activities*	Percentage Reporting "Unable to Work"***
1	10 & over	34.8% \pm 27.3%	6.7% \pm 5.4%
2	5 to less than 10	9.3% \pm 5.0%	1.4% \pm 1.1%
3	0 to less than 5	6.6% \pm 3.6%	0.6% \pm 0.4%
4	less than 0 to -5	10.3% \pm 7.0%	1.6% \pm 1.4%
5	less than -5 to -10	12.1% \pm 8.9%	4.4% \pm 5.9%
6	less than -10 to -15	30.5% \pm 17.4%	8.9% \pm 5.2%
7	less than -15 to -20	23.7% \pm 22.6%	7.2% \pm 4.2%
8	less than -20	37.2% \pm 20.6%	8.8% \pm 4.4%

* Limited in any way in performing usual activities because of an impairment or health problem. Sample n's for this column are approximately one-sixth of the sizes reported in the weighted sample size, above.

** Not employed and unable to work during most of the previous year, adults age 18 to 64.

percentage of persons seeking mental health services in the last 12 months. Mental health help-seeking behavior is a variable that has strong conceptual face-validity for use as a criterion variable for setting a cut-point for defining poor mental health. The data in the following table suggest three levels of mental health status: Good or excellent mental health status is indicated by small percentages of persons seeking help in levels 1 through 4. In levels 5, 6 and 7, about a fifth of persons sought mental health services. And in level 8, at MCS12 Difference Scores less than -20, about two-fifths of persons sought mental health services in the last 12 months. Conventional wisdom suggests that there are still social barriers to seeking mental health services, and that those who actually seek help are representative of larger numbers who would benefit from help but do not seek it. If this is true, perhaps a cut-off point at level 5, at an MCS12 Difference Score below -5, is indicated by these data. There was a weak association between MCS12 Difference Scores and the number of medical visits, and virtually no relationship was found for the likelihood of a hospital visit in the last 12 months.

Reviewing the evidence from the eight-level groupings of both the PCS12 and MCS12

Comparison of Eight Mental Health Status Groups: Mental Health Help-Seeking Behavior, Medical Visits and Hospitalization

Level	MCS12 Difference Score Range	Percentage Seeking Mental Health Services in Last 12 Months	Mean Number of Medical Visits, Last 12 Mos.*	Percentage With One or More Hospital Visits, Last 12 Mos.*
1	10 & over	8.5% ± 8.1%	6.5 ± 4.9	16.5% ± 22.1%
2	5 to less than 10	3.1% ± 1.3%	3.9 ± 1.5	6.2% ± 6.0%
3	0 to less than 5	4.4% ± 1.2%	2.8 ± 0.6	1.7% ± 1.5%
4	less than 0 to -5	9.0% ± 2.9%	3.5 ± 1.4	3.2% ± 3.4%
5	less than -5 to -10	18.5% ± 5.8%	2.9 ± 1.2	11.2% ± 13.6%
6	less than -10 to -15	19.1% ± 7.8%	3.1 ± 1.4	4.4% ± 4.9%
7	less than -15 to -20	25.7% ± 9.7%	7.6 ± 6.7	18.3% ± 24.4%
8	less than -20	41.5% ± 8.3%	7.1 ± 4.0	1.2% ± 1.9%

* Sample n 's for these columns are approximately one-sixth of the sizes reported in the weighted sample sizes for the MCS difference scores, above.

Difference Scores, it appears that a cut-off point for defining poor health status could be drawn as high as -5 (at level 5). This seems to be the level at which health status begins to effect various aspects of a person's life. It is also very similar to the cut-off points for individual scores, described on pages 14 and 15. With a PCS12 Difference Score below -5, more than half have one or more chronic medical conditions and about 20% have a functional limitation in their usual activities. Similarly, persons with an MCS12 Difference Score below -5 have about a 20% probability of having sought mental health services in the last 12 months. It is only at much lower difference score levels that a person's physical or mental health status appears to have grave impacts on his or her life. At a PCS12 Difference Score level below -20, a person has about a 73% chance of having a functional limitation, and about a 30% chance of being disabled and unable to work. Also at this level, about 73% have one or more chronic medical conditions. At an MCS12 Difference Score level below -20, about 40% have sought mental health services in the last 12 months.

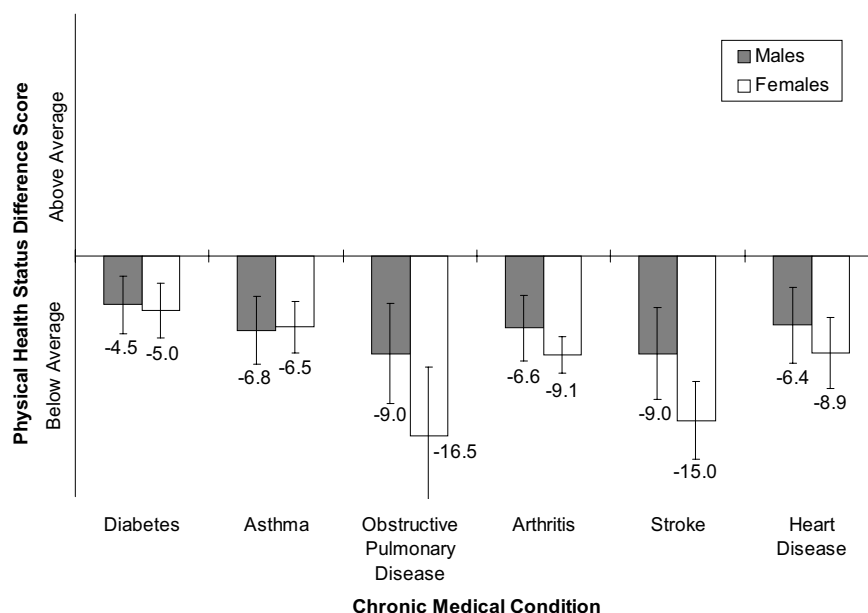
The question of which level to use as a cut-off point for defining poor health status depends partially on one's use of the data, that is, one's reason for asking. If the user is trying to identify a group of persons whose lives are certainly and severely affected by their health status, then the user should use a cut-off point around -20. However, for most purposes, a less restrictive cut-off point is desirable because it identifies persons whose lives are probably being affected by their health, even though it wouldn't always be manifest on one of a limited number of criterion measures. These data suggest that the method described on pages 14 and 15, that is, PCS12 or MCS12 Differences Scores below -6.53 (physical health) or -6.11 (mental health) for use as this less restrictive level.

The Influence of Disease and Lifestyle on Quality of Life

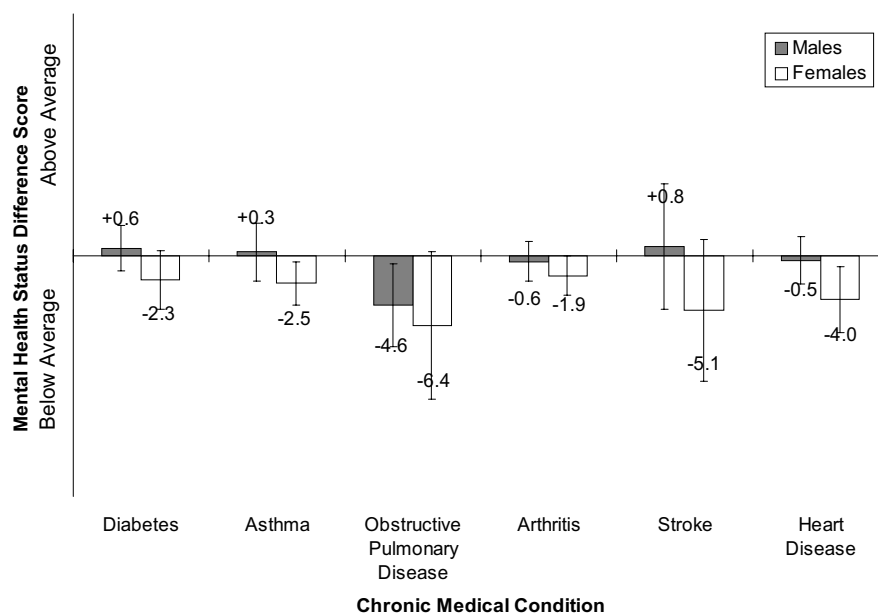
This section uses the Age-Specific Difference Scores for the Physical and Mental Health Composite Scales, and averages them across groups of persons with various health conditions. For each group mean, a confidence interval has been computed and presented in the figures. If the confidence interval for a group's mean difference score does not include zero (the age-specific average score) that group can be considered statistically significantly above or below average.

Some large differences in health outcomes emerge for persons with health problems. Something that must be kept in mind when examining all the data in this report is that the results are based on cross-sectional, or one-point-in-time data. Using these data, we can not say, for instance, that a lifestyle characteristic, such as exercise, caused better health outcomes. An alternative explanation is that persons who are ill or have some physical limitation find it difficult to exercise regularly. One or the other explanation may be more plausible, but these data cannot tell us which one is correct.

Physical Health Status Difference Scores for Persons with Six Chronic Medical Conditions: Adults Age 18 or Over, Utah, 1996

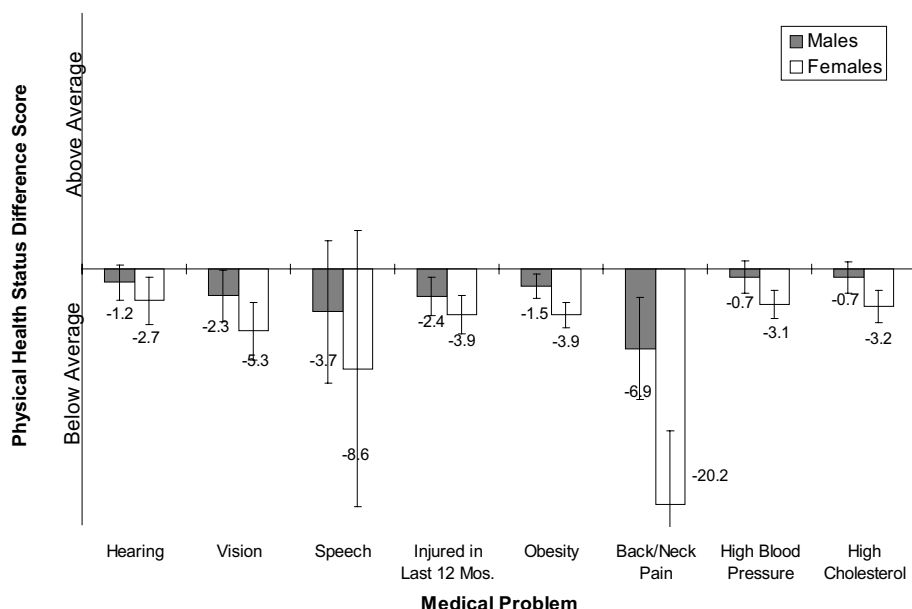


Mental Health Status Difference Scores for Persons with Six Chronic Medical Conditions: Adults Age 18 or Over, Utah, 1996

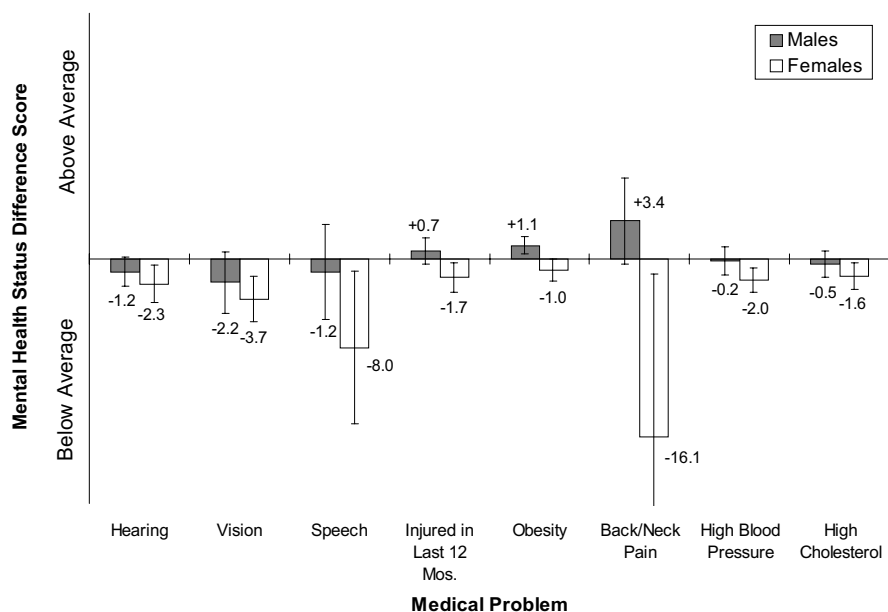


- **Chronic medical conditions, most notably chronic obstructive pulmonary disease and stroke, exerted a strong negative influence on health status, especially physical health status.**
- **Women scored lower than men, especially on the mental health summary measure.**

Physical Health Status Difference Scores for Persons with Eight Medical Problems: Adults Age 18 or Over, Utah, 1996

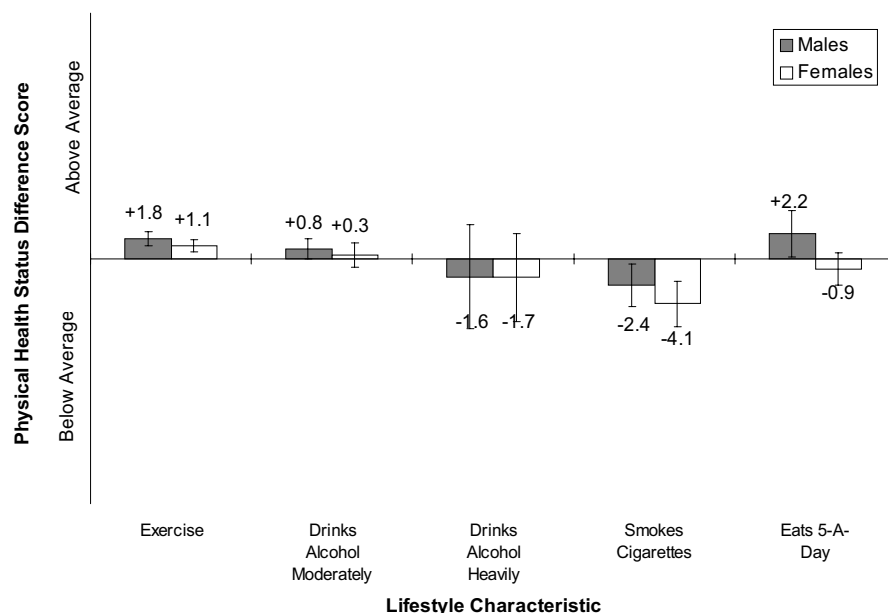


Mental Health Status Difference Scores for Persons with Eight Medical Problems: Adults Age 18 or Over, Utah, 1996

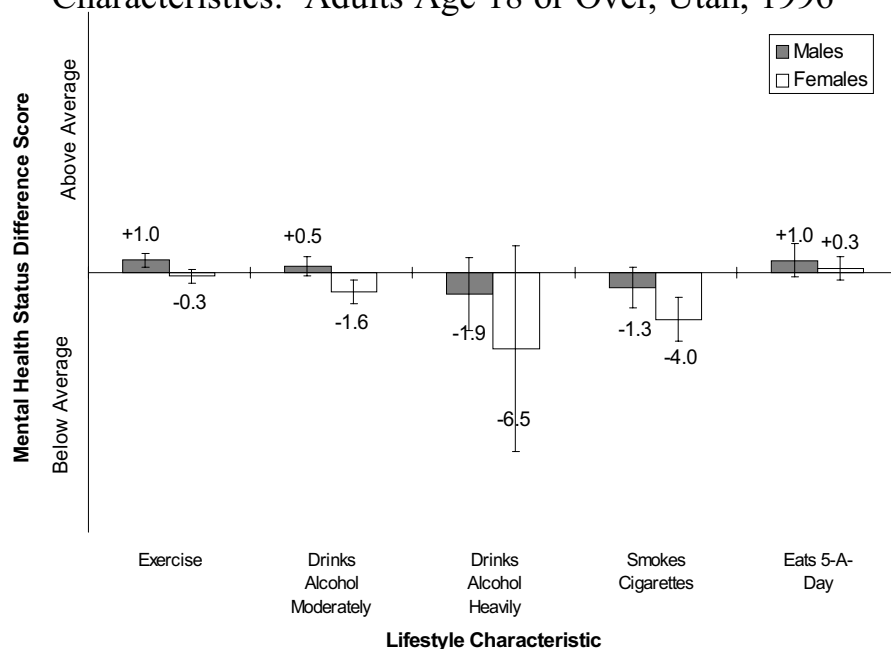


- Other medical problems were also associated with poorer physical and mental health. Persons reported here with back/neck pain are those whose usual activities are limited primarily because of back or neck pain.

Physical Health Status Difference Scores for Persons with Four Lifestyle Characteristics: Adults Age 18 or Over, Utah, 1996



Mental Health Status Difference Scores for Persons with Four Lifestyle Characteristics: Adults Age 18 or Over, Utah, 1996

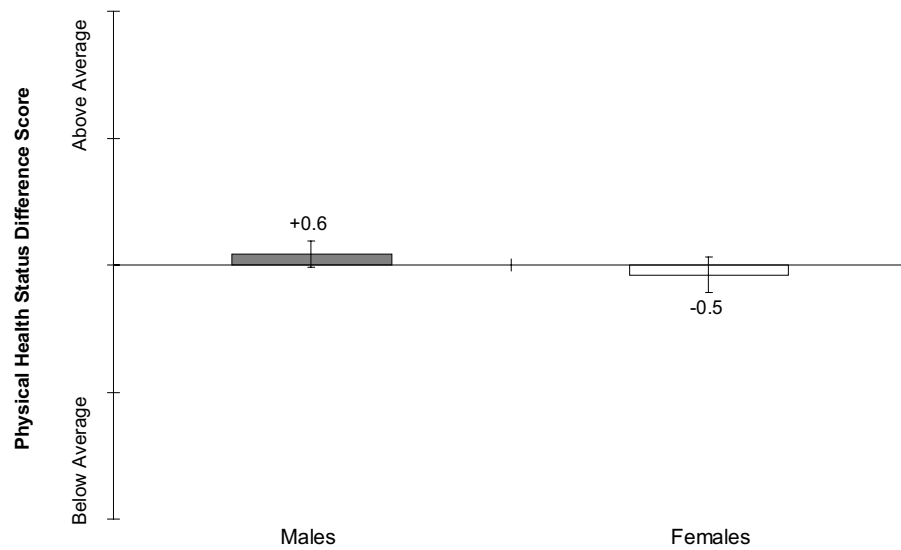


- The five lifestyle characteristics examined were generally associated with differences in health status in the expected directions.

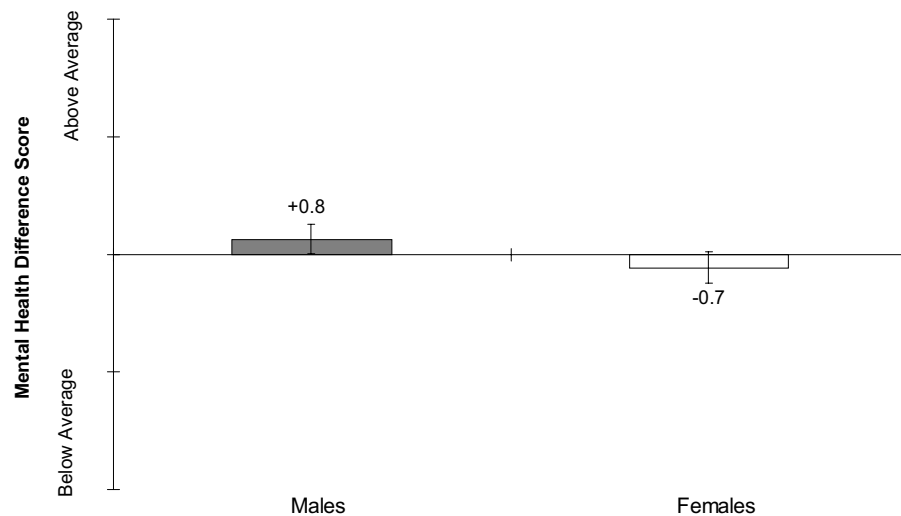
The Health Status of Populations in Utah

This section compares age-specific difference scores across various demographic groups. Although the differences are generally not as large as those found in the preceding section, there are some significant differences and interesting trends, most remarkably the trends in health status by income and educational status.

Physical Health Status Difference Scores by Sex:
Adults Age 18 or Over, Utah, 1996

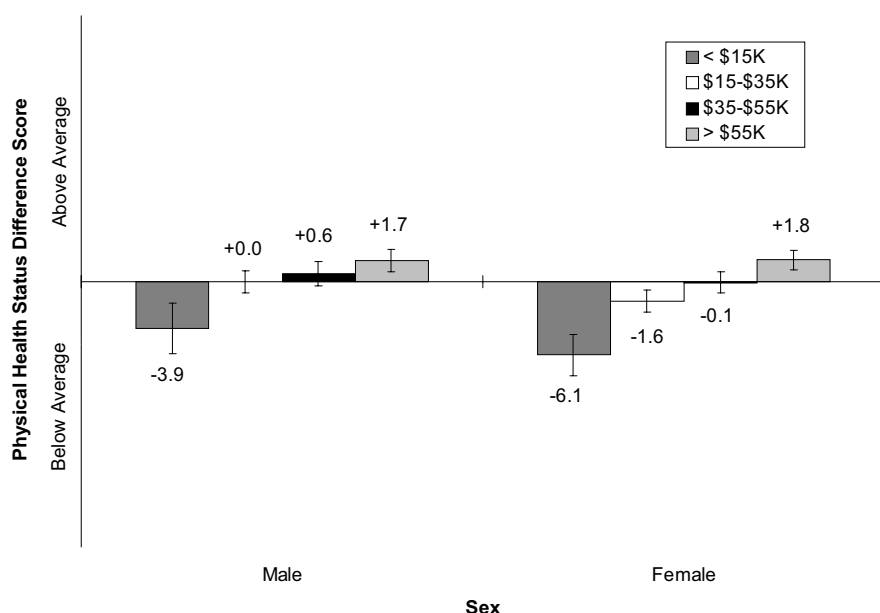


Mental Health Status Difference Scores by Sex:
Adults Age 18 or Over, Utah, 1996

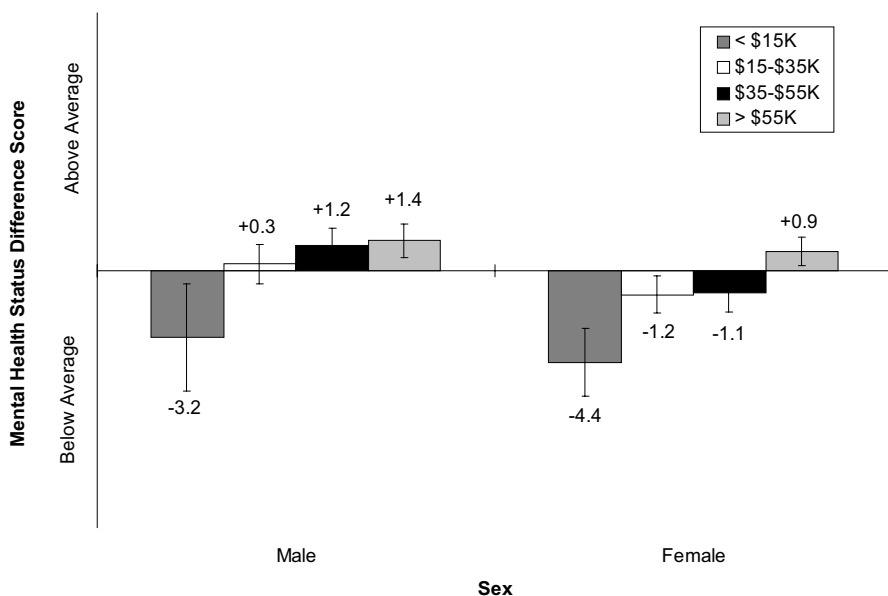


- **Males scored significantly higher on both the Physical Health and Mental Health Composite Scales. This finding is consistent with results of other studies (e.g., BRFSS) and suggests that women's experience of physical health is poorer than men's. It may also be due, at least in part, to a greater reluctance on the part of males to acknowledge or report poor physical and mental health states.**

Physical Health Status Difference Scores by Sex and Income: Adults Age 18 or Over, Utah, 1996

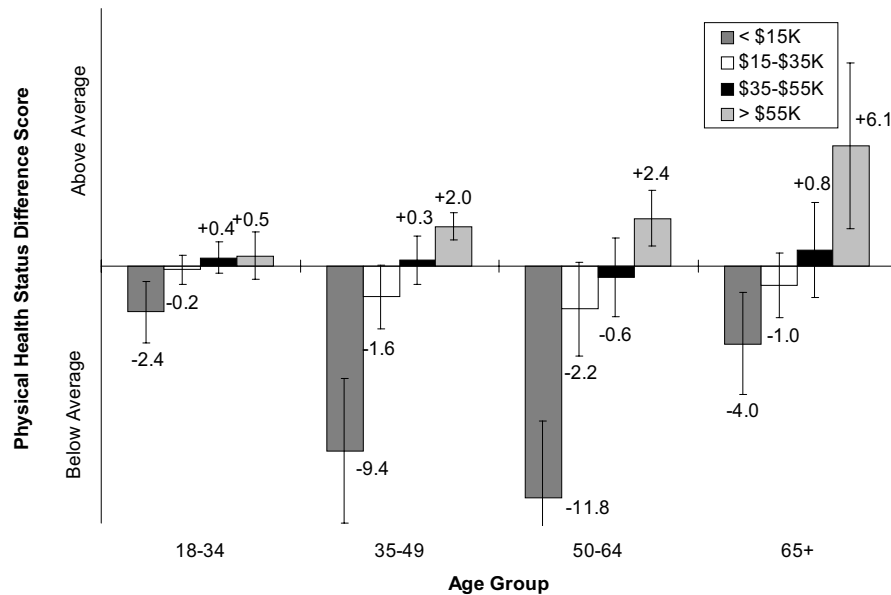


Mental Health Status Difference Scores by Sex and Income: Adults Age 18 or Over, Utah, 1996

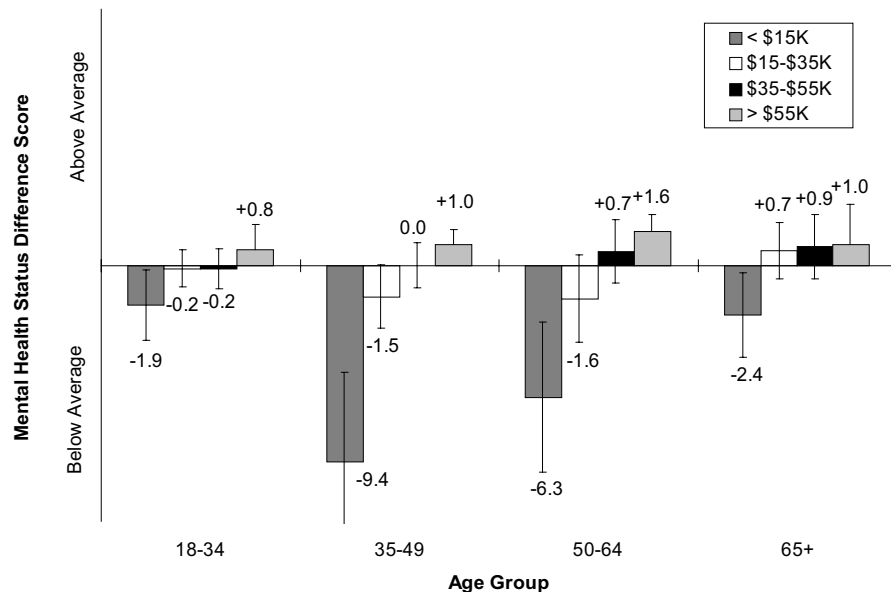


- There were large differences in both PCS12 and MCS12 scores for both men and women in different income groups. It is likely that income influences health, and health also influences income. In addition, researchers hypothesize that other factors, such as sense of control over one's destiny, exert a strong influence on both health and earning ability.

Physical Health Status Difference Scores by Age Group and Income: Adults Age 18 or Over, Utah, 1996

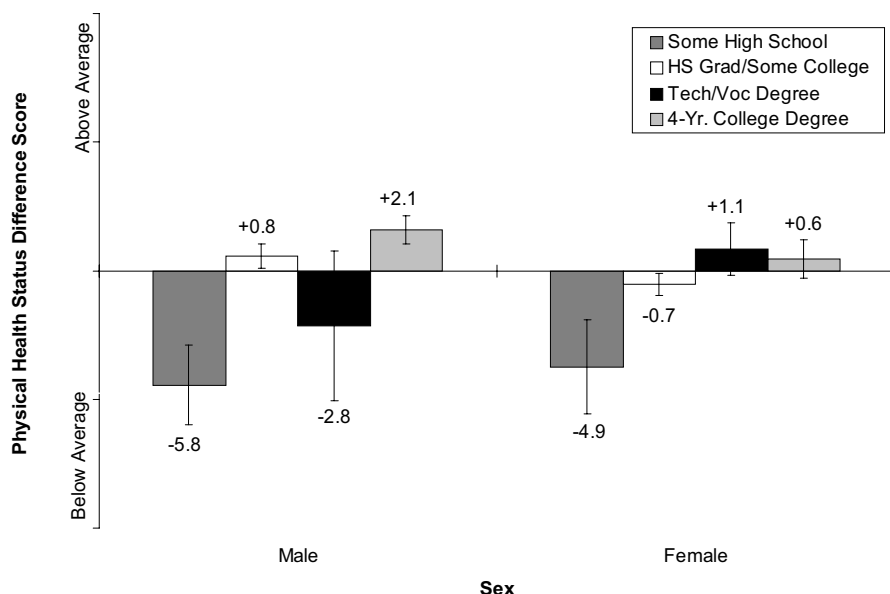


Mental Health Status Difference Scores by Age Group and Income: Adults Age 18 or Over, Utah, 1996

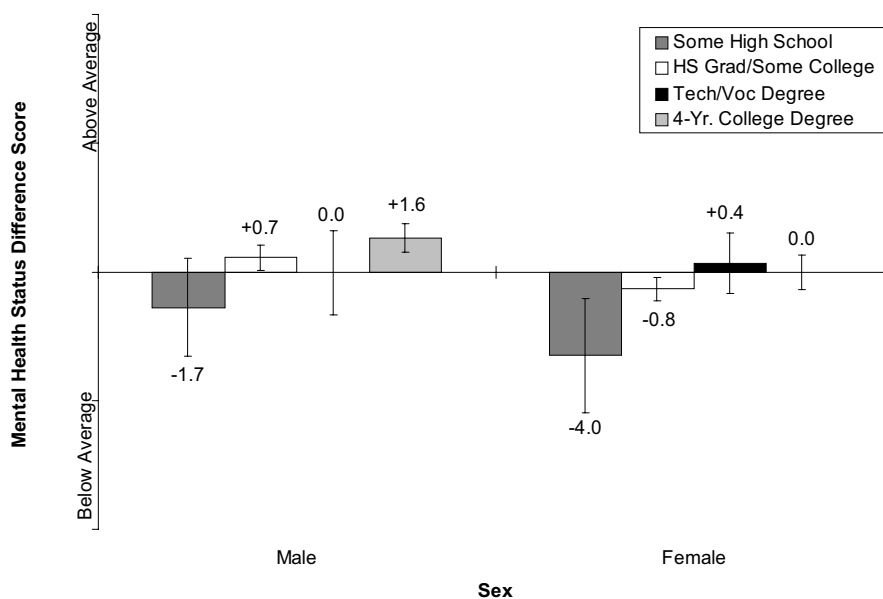


- A similar pattern for health outcomes by income category was found for persons in all age groups. The largest differences were found among persons age 35-64. It is interesting to note that these are the prime income-earning age groups. Could poor health among persons age 35 to 64 be especially detrimental to one's earning potential?

Physical Health Status Difference Scores by Sex and Education Level: Adults Age 18 or Over, Utah, 1996

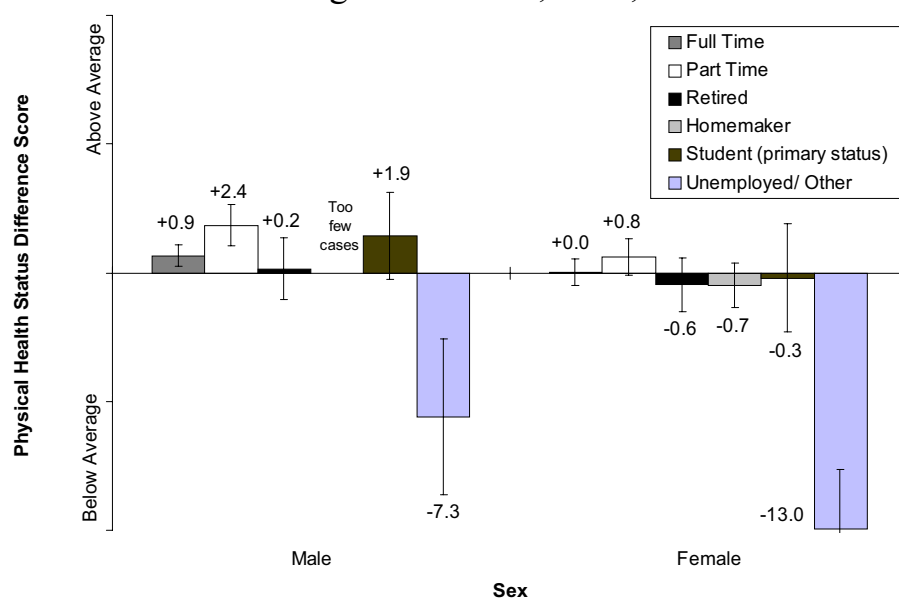


Mental Health Status Difference Scores by Sex and Education Level: Adults Age 18 or Over, Utah, 1996

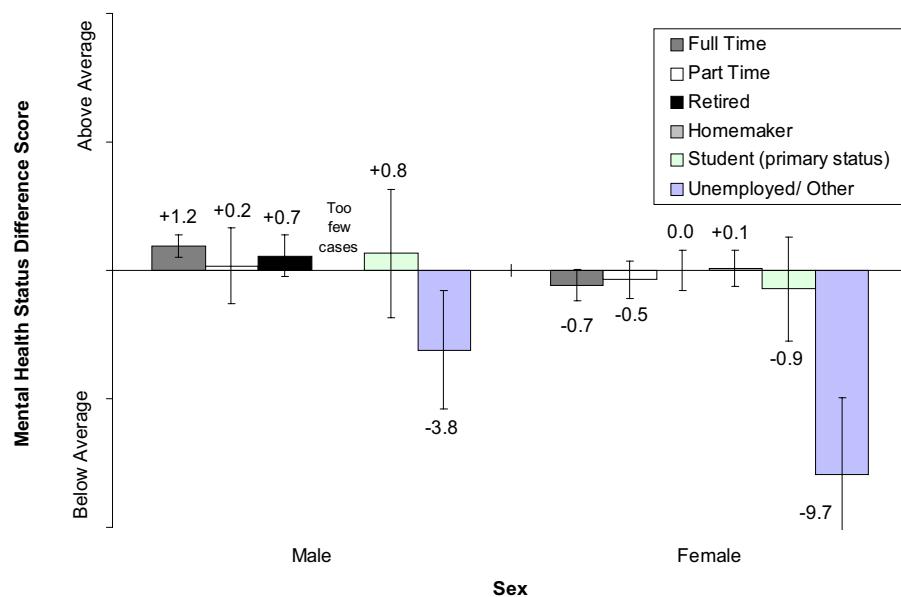


- There were fairly sizeable differences in both PCS12 and MCS12 scale scores by education status, with the lowest scores found among persons without a high school diploma.
- Men with a vocational or technical degree did not score as highly as women with the same degree, or men with only a high school diploma.

Physical Health Status Difference Scores by Sex and Employment Status: Adults Age 18 or Over, Utah, 1996

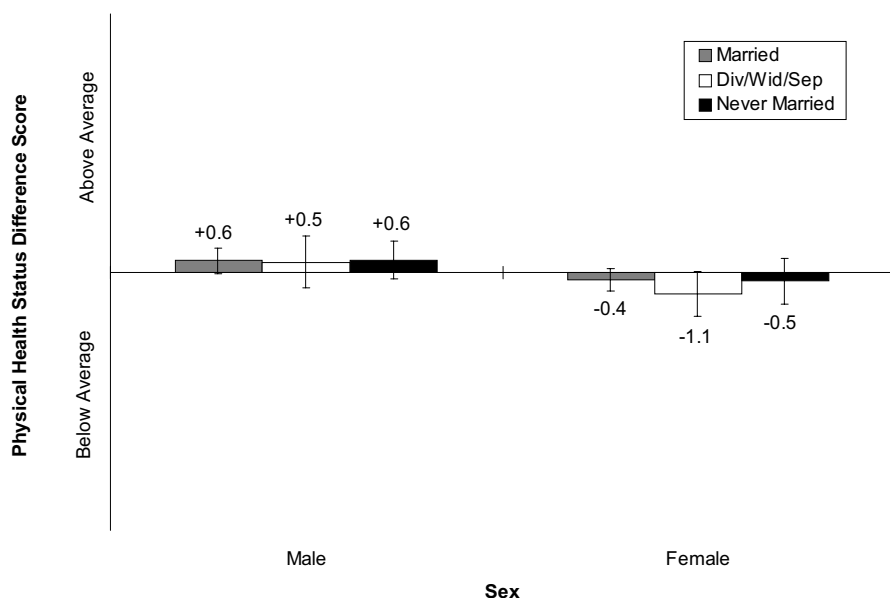


Mental Health Status Difference Scores by Sex and Employment Status: Adults Age 18 or Over, Utah, 1996

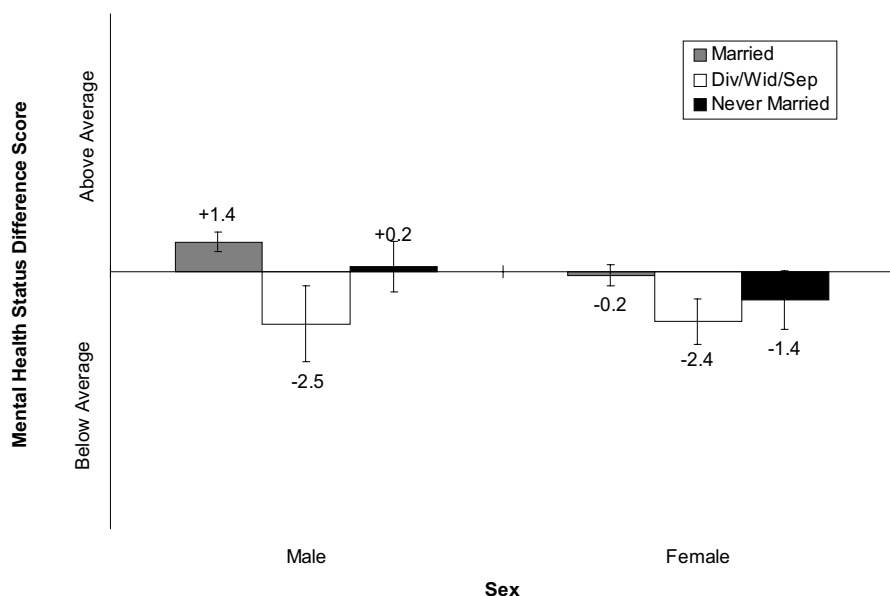


- Persons in the unemployed/other category had the lowest physical and mental health outcomes. The “other” category included persons “temporarily not at work” and those “disabled/unable to work” persons whose health influenced their employment status.

Physical Health Status Difference Scores by Sex and Marital Status: Adults Age 18 or Over, Utah, 1996

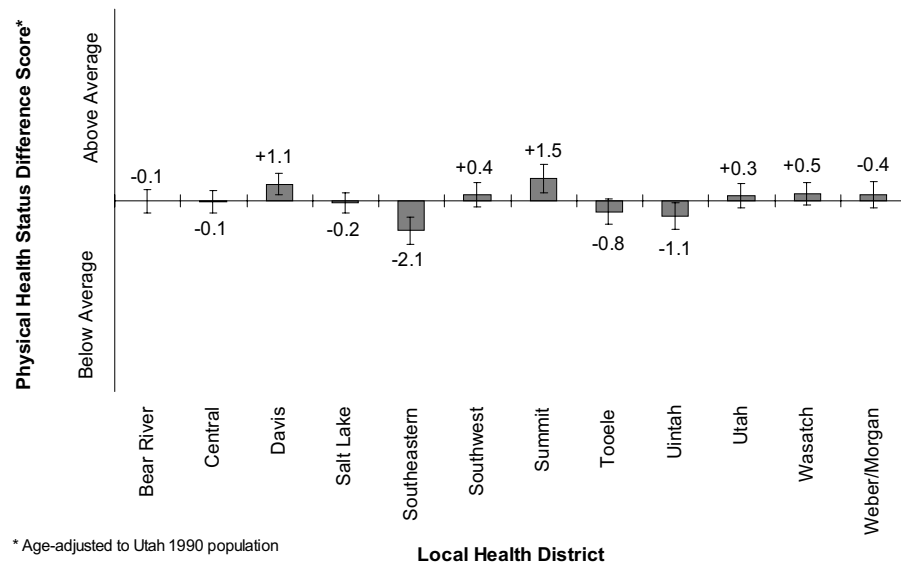


Mental Health Status Difference Scores by Sex and Marital Status: Adults Age 18 or Over, Utah, 1996

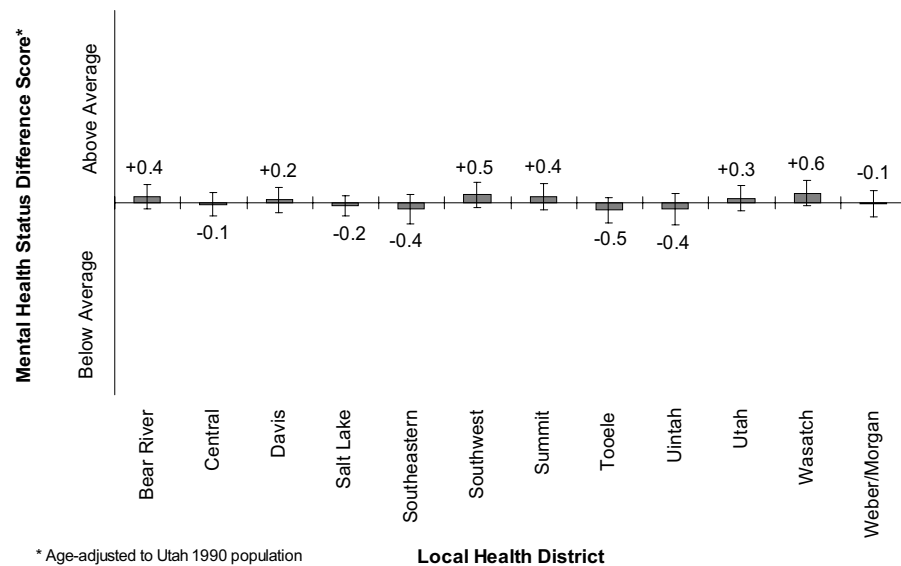


- Analysis of marital status did not yield differences in physical health. However, married men exhibited above average mental health status, and both men and women who were divorced, widowed, or separated tended to have Mental Health Status Scores that were below average.

Physical Health Status Difference Scores by Local Health District: Adults Age 18 or Over, Utah, 1996



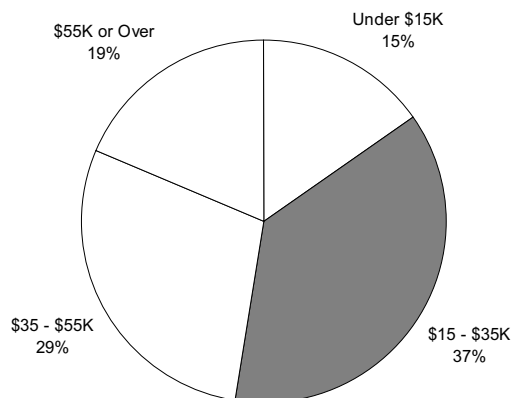
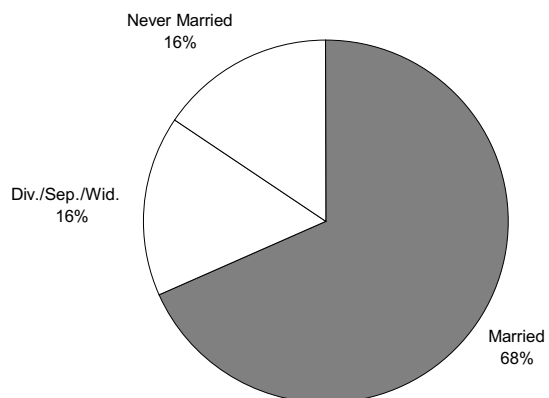
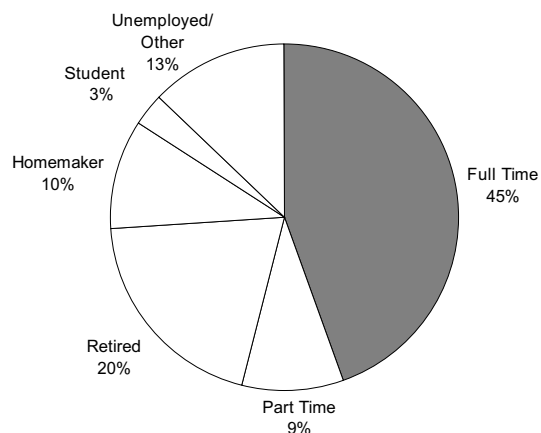
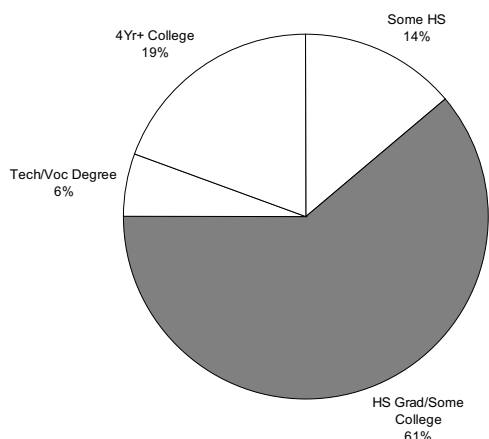
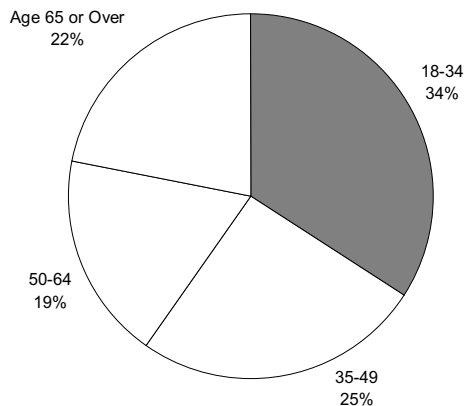
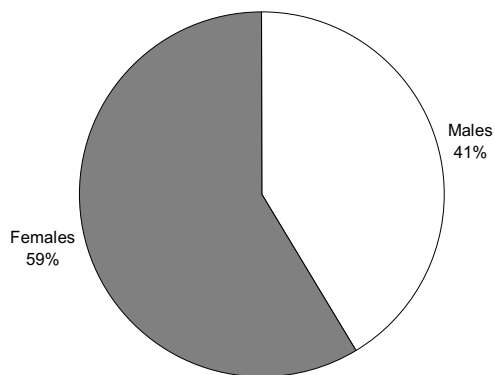
Mental Health Status Difference Scores by Wasatch Front Residence: Adults Age 18 or Over, Utah, 1996



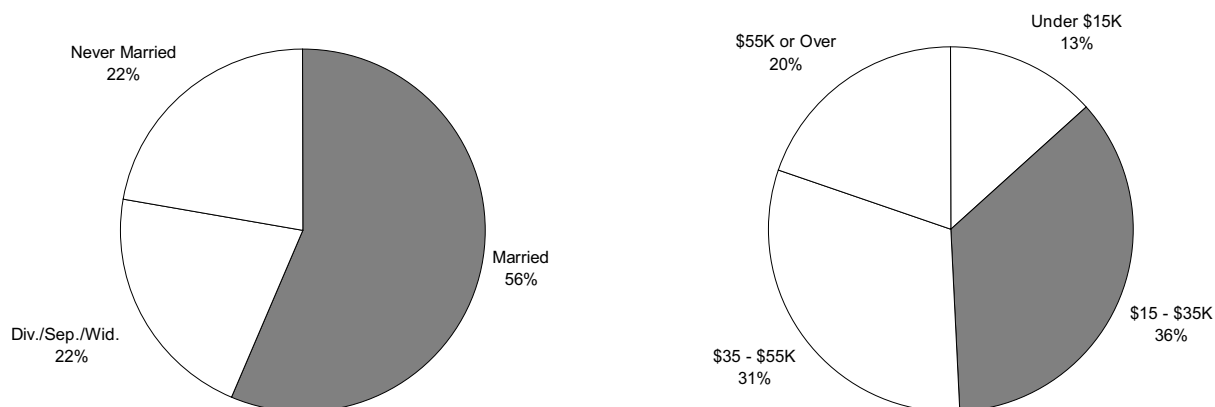
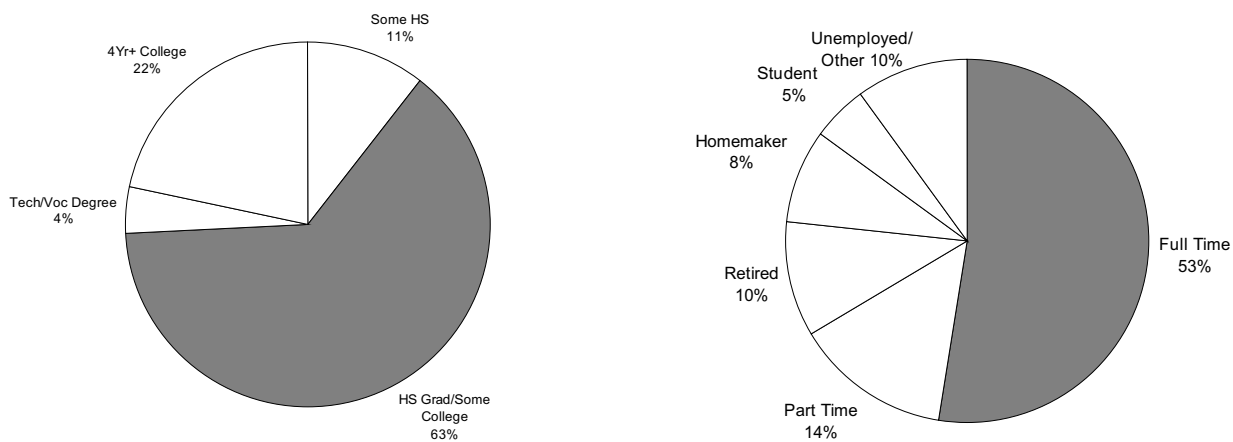
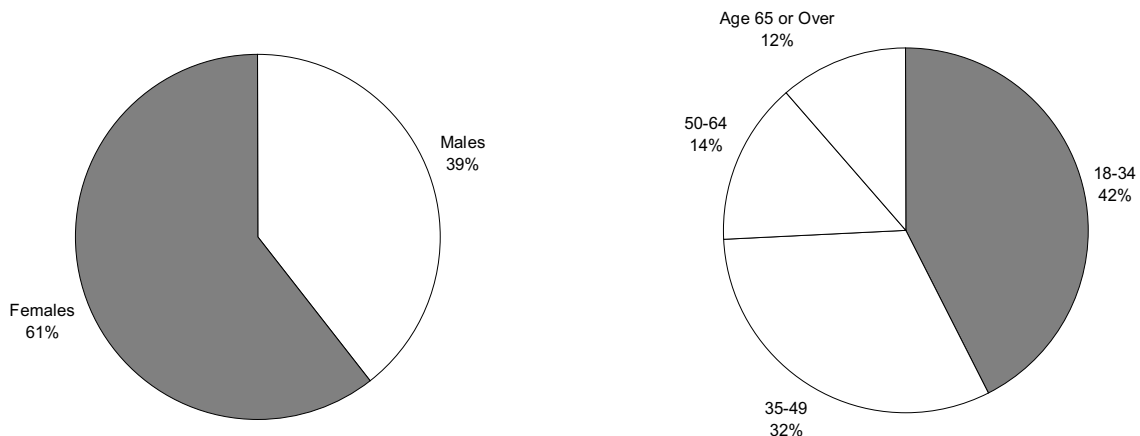
- There were small differences in health outcomes for persons by local health district. Davis and Summit Counties had above average physical health status, while Southeastern and Uintah Health Districts scored below average on the physical health measure. While these findings are consistent with other views of health status (such as death rates and HP2000 Health Status Indicators) the findings in Southeastern and Uintah Health Districts should probably be interpreted with caution, as these districts have relatively large American Indian populations, and cultural differences might result in different patterns of response to the SF-12 questions.

A Profile of Utahns With Poor Health Status

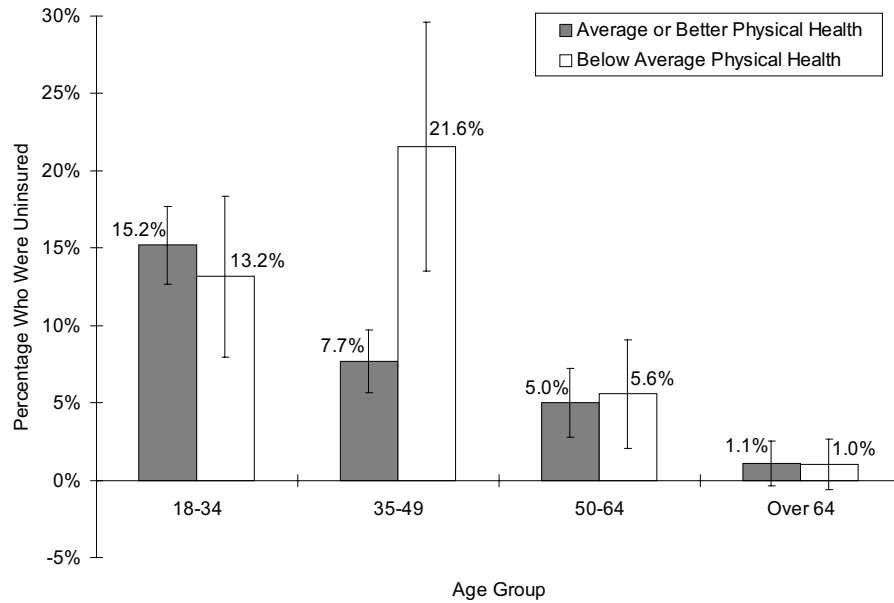
The Distribution of Persons With Poor Physical Health by Sex, Age, Education, Employment, Marital Status, and Income Category: Adults Age 18 or Over, Utah, 1996



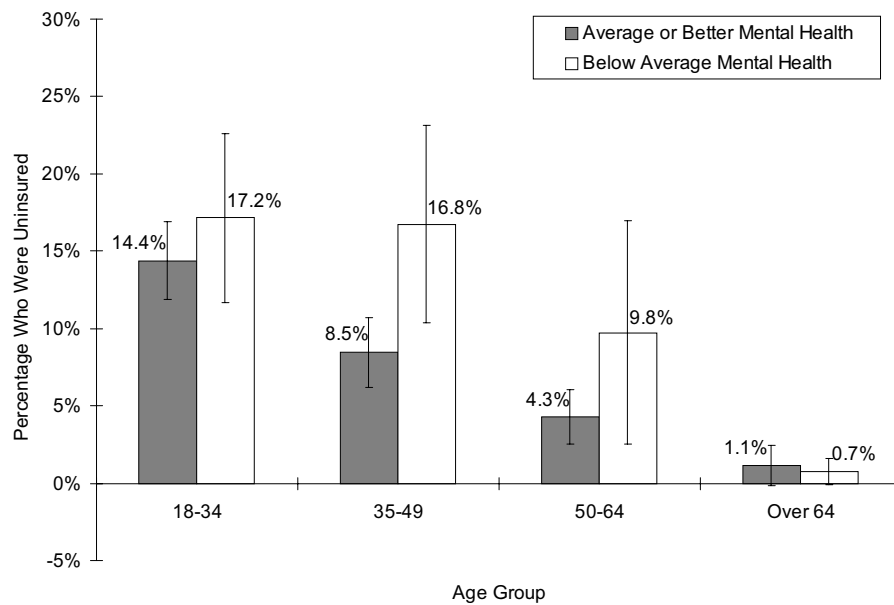
The Distribution of Persons With Poor Mental Health by Sex, Age, Education, Employment, Marital Status, and Income Category: Adults Age 18 or Over, Utah, 1996



Percentage of Utahns Without Health Insurance by Physical Health Status and Age: Adults Age 18 or Over, Utah, 1996

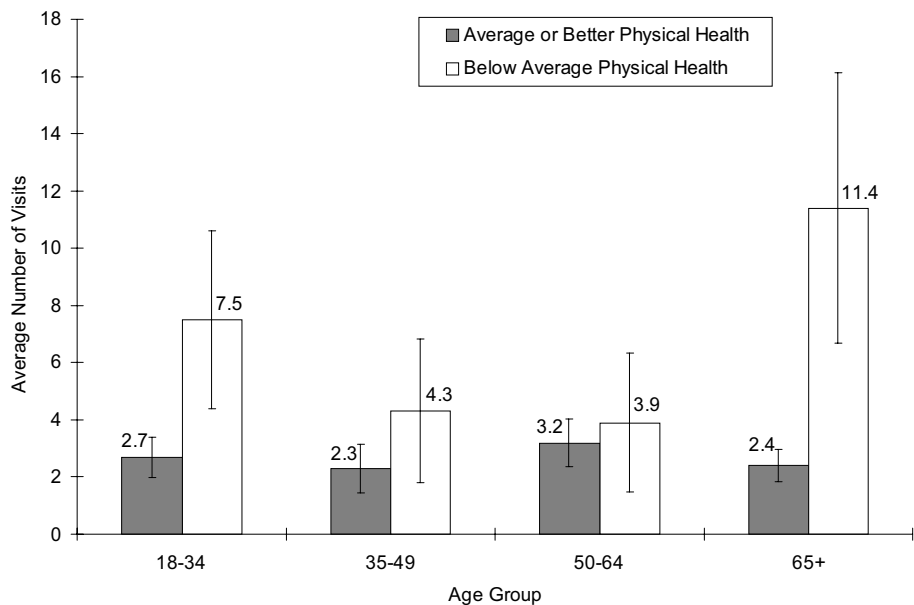


Percentage of Utahns Without Health Insurance by Mental Health Status and Age: Adults Age 18 or Over, Utah, 1996

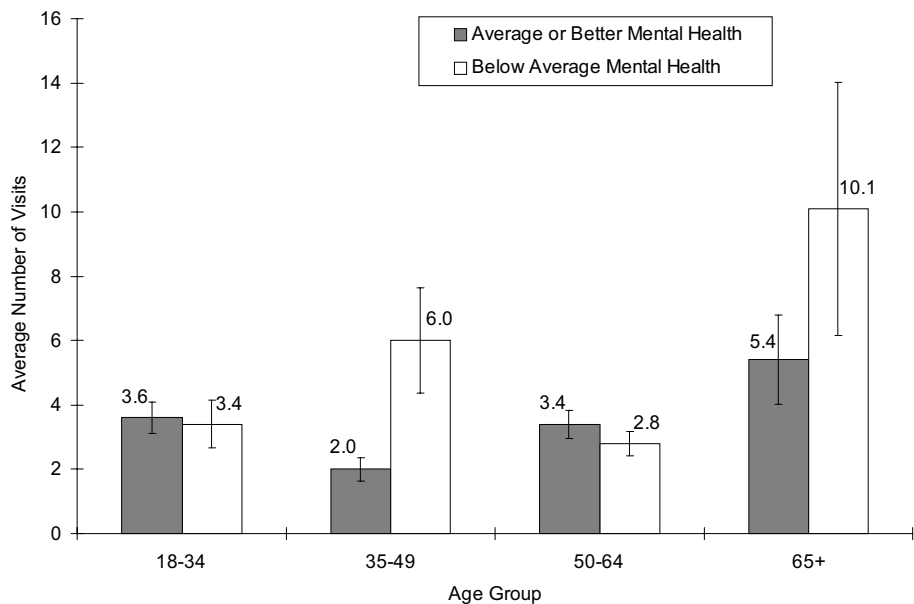


- **Adults with poor (below average) health status are more likely to be without health insurance.**
- **The discrepancy in percentage without health insurance by health status was the greatest among persons age 35-49.**

Number of Outpatient Medical Visits in Last 12 Months by Physical Health Status and Age: Persons Age 18 or Over, Utah, 1996

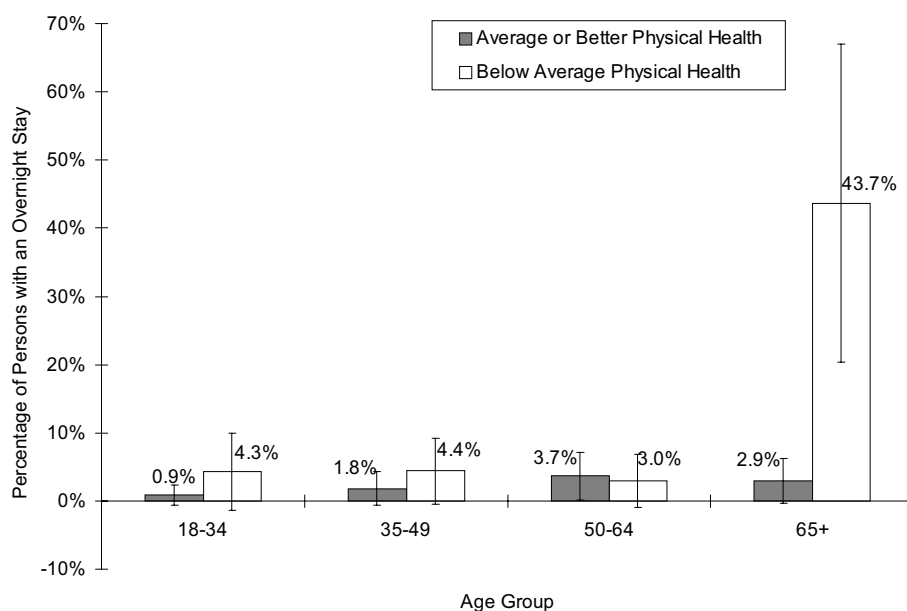


Number of Outpatient Medical Visits in Last 12 Months by Mental Health Status and Age: Persons Age 18 or Over, Utah, 1996

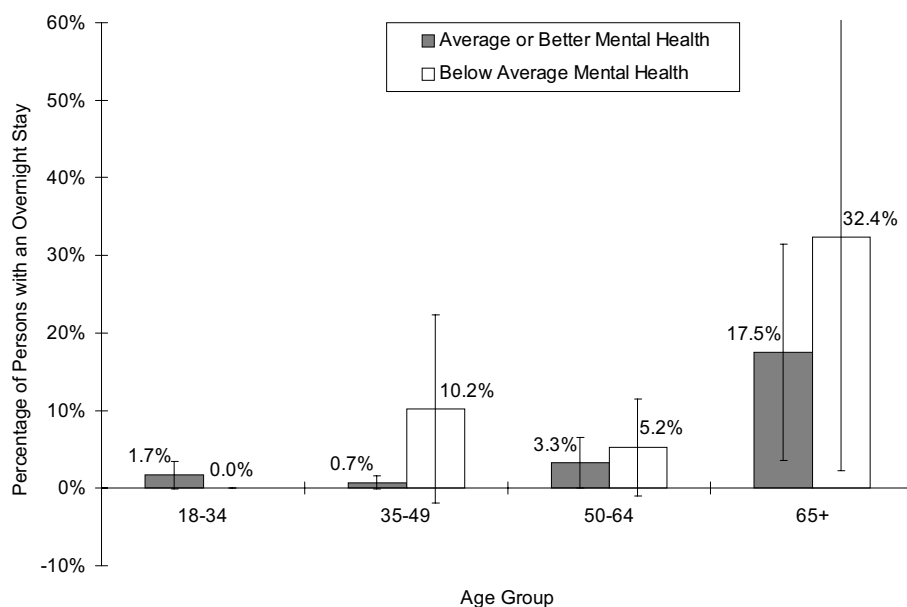


- **Persons with poor health outcomes tended to have outpatient medical visits in the last 12 months. This was especially true for persons age 65 and over, and young adults (age 18-34) with poor physical health status.**

Percentage With an Overnight Hospital Stay in the Last 12 Months by Physical Health Status and Age: Persons Age 18 or Over, Utah, 1996



Percentage With an Overnight Hospital Stay in the Last 12 Months by Mental Health Status and Age: Persons Age 18 or Over, Utah, 1996



- **Persons with below-average physical and mental health were more likely to have had at least one overnight hospital stay in the last 12 months. This was especially true for persons age 65 and over.**

REFERENCE TABLES

- Interpreting the SF-12
- The Influence of Disease and Lifestyle on Quality of Life
- The Health Status of Populations in Utah
- A Profile of Utahns With Poor Health Status

Interpreting the SF-12

Responses to the 12 Survey Questions: Adults Age 18 or Over, Utah, 1996

In general, would you say your health is excellent, very good, good, fair, or poor?

Poor	2.7%	\pm 0.55%
Fair	8.3%	\pm 1.08%
Good	24.9%	\pm 1.67%
Very good	34.7%	\pm 1.84%
Excellent	29.4%	\pm 1.76%

The next few questions ask about activities you might do during a typical day.

Does YOUR HEALTH NOW LIMIT YOU IN MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf? Would you say you are limited a lot, a little, or not at all?

A lot	7.8%	\pm 1.02%
A little	13.9%	\pm 1.33%
Not at all	78.3%	\pm 1.59%

How about CLIMBING SEVERAL FLIGHTS OF STAIRS? Would you say your health limits you a lot, a little, or not at all?

A lot	8.2%	\pm 1.06%
A little	18.5%	\pm 1.51%
Not at all	73.3%	\pm 1.71%

Thinking about the past four weeks, have you ACCOMPLISHED LESS than you would like AS A RESULT OF YOUR PHYSICAL HEALTH?

Yes	21.4%	\pm 1.59%
No	78.6%	\pm 1.59%

During the past four weeks, were you limited in the KIND of work or other activities you could do as a result of your physical health?

Yes	18.0%	\pm 1.47%
No	82.0%	\pm 1.47%

The next questions ask about problems you may have had with your work or other regular daily activities as a result of any EMOTIONAL PROBLEMS, such as feeling depressed or anxious.

In the past four weeks, did you ACCOMPLISH LESS than you would like AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?

Yes	14.9%	\pm 1.35%
No	85.1%	\pm 1.35%

During the last four weeks, did you have trouble doing work or other activities as CAREFULLY as usual AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?

Yes	10.3%	\pm 1.14%
No	89.7%	\pm 1.14%

During the past four weeks, how much did PAIN interfere with your normal work including both work outside the home and housework, would you say (*read responses*)?

Extremely	1.7%	\pm 0.45%
Quite a bit	4.8%	\pm 0.84%
Moderately	7.8%	\pm 1.06%
A little bit	24.6%	\pm 1.67%
Not at all	61.1%	\pm 1.88%

The next three questions ask about how you feel and how things have been with you DURING THE PAST FOUR WEEKS.

How much of the time during the past four weeks have you felt calm and peaceful? Would you say *(read 1-6)*?

None of the time	1.3%	± 0.39%
A little of the time	5.0%	± 0.82%
Some of the time	14.0%	± 1.39%
Good bit of the time	16.9%	± 1.45%
Most of the time	53.5%	± 1.92%
All of the time	9.3%	± 1.10%

How much of the time during the PAST FOUR WEEKS did you have a lot of energy? Would you say *(read 1-6)*?

None of the time	1.9%	± 0.45%
A little of the time	6.6%	± 1.00%
Some of the time	15.6%	± 1.37%
Good bit of the time	21.4%	± 1.63%
Most of the time	46.1%	± 1.92%
All of the time	8.3%	± 1.02%

How much of the time during the past four weeks have you felt downhearted and blue? *(If necessary, read responses)*

All of the time	0.7%	± 0.27%
Most of the time	2.6%	± 0.61%
Good bit of the time	3.6%	± 0.69%
Some of the time	13.2%	± 1.31%
A little of the time	36.8%	± 1.86%
None of the time	43.2%	± 1.92%

During the last four weeks, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities, like visiting with friends, relatives, etc.? *(If necessary, read responses)*

All of the time	1.1%	± 0.37%
Most of the time	2.5%	± 0.65%
Good bit of the time*	2.0%	± 0.45%
Some of the time	6.9%	± 1.04%
A little of the time	12.7%	± 1.29%
None of the time	74.8%	± 1.69%

Weighted Survey Sample Distributions for Medical Outcomes Study SF12 Physical and Mental Health Composite Scale Scores: Adults, Age 18 or Over, 1996

Physical Health Composite Scale

Score (truncated to integer value)	Weighted Sample Count	Percent with Score
11	0.3	0.0%
12	3.9	0.1%
13	1.8	0.0%
14	4.8	0.1%
15	3.6	0.1%
16	8.0	0.1%
17	10.3	0.2%
18	5.6	0.1%
19	12.6	0.2%
20	14.4	0.2%
21	17.8	0.3%
22	33.2	0.5%
23	31.3	0.5%
24	24.1	0.4%
25	13.1	0.2%
26	46.8	0.8%
27	33.4	0.5%
28	28.3	0.5%
29	30.8	0.5%
30	41.0	0.7%
31	38.6	0.6%
32	38.6	0.6%
33	48.2	0.8%
34	48.3	0.8%
35	59.1	1.0%
36	71.8	1.2%
37	57.5	0.9%
38	79.6	1.3%
39	77.0	1.3%
40	52.9	0.9%
41	44.0	0.7%
42	89.1	1.4%
43	112.8	1.8%
44	116.5	1.9%
45	102.4	1.7%
46	132.5	2.2%
47	143.6	2.3%
48	160.1	2.6%
49	192.2	3.1%
50	236.9	3.8%
51	250.2	4.1%
52	326.5	5.3%
53	397.0	6.4%
54	353.2	5.7%
55	780.1	12.7%
56	863.7	14.0%
57	492.0	8.0%
58	147.5	2.4%
59	65.6	1.1%
60	52.2	0.8%
61	68.2	1.1%
62	48.3	0.8%
63	20.6	0.3%
64	13.6	0.2%
65	7.9	0.1%
66	1.0	0.0%
67	0.0	0.0%
68	0.2	0.0%
69	0.2	0.0%
Total	6,154.9	100.0%

Mental Health Composite Scale

Score (truncated to integer value)	Weighted Sample Count	Percent with Score
9	0.2	0.0%
11	0.0	0.0%
12	0.2	0.1%
13	5.3	0.0%
14	0.6	0.0%
15	0.4	0.0%
16	0.4	0.0%
17	2.0	0.1%
18	3.3	0.1%
19	4.3	0.2%
20	13.5	0.1%
21	8.9	0.1%
22	7.8	0.2%
23	15.3	0.3%
24	15.9	0.3%
25	18.4	0.3%
26	19.1	0.2%
27	12.1	0.3%
28	17.4	0.5%
29	33.2	0.5%
30	29.7	0.4%
31	24.1	0.4%
32	25.7	0.4%
33	23.5	0.4%
34	24.9	0.5%
35	33.4	0.5%
36	33.4	0.6%
37	39.6	0.6%
38	35.7	0.6%
39	34.7	0.9%
40	56.5	1.2%
41	73.8	1.1%
42	68.7	0.9%
43	56.9	1.2%
44	75.5	1.0%
45	62.0	1.3%
46	82.3	1.6%
47	95.6	1.4%
48	85.4	1.6%
49	101.5	2.0%
50	125.1	2.5%
51	156.0	3.8%
52	234.9	4.1%
53	254.0	5.2%
54	322.0	4.0%
55	243.3	13.2%
56	814.1	5.2%
57	317.1	15.1%
58	932.3	6.0%
59	372.2	6.4%
60	393.0	5.1%
61	311.2	2.3%
62	141.1	1.5%
63	94.2	1.5%
64	92.0	0.6%
65	39.1	0.4%
66	24.9	0.4%
67	22.2	0.2%
68	9.9	0.0%
69	2.1	0.2%
70	9.5	0.1%
Total	6,151.3	100.0%

Comparison of U.S. and Utah Populations Mean Scores on
the SF-12 Physical Health Composite Scale (PCS12):
Utah 1996, U.S. 1995*

Age	PCS12		
	U.S.	Utah	
18-34	53.33	51.93	\pm 0.47
35-44	52.18	51.42	\pm 0.69
45-54	49.71	50.53	\pm 1.08
55-64	46.55	47.67	\pm 1.23
65-74	43.65	44.59	\pm 1.33
75+	38.68	42.71	\pm 1.74

Comparison of U.S. and Utah Populations Mean Scores on
the SF-12 Mental Health Composite Scale (PCS12):
Utah 1996, U.S. 1995*

Age	U.S.	Utah	
18-34	49.18	52.21	\pm 0.53
35-44	50.1	52.35	\pm 0.71
45-54	50.45	53.64	\pm 0.76
55-64	50.57	54.69	\pm 0.94
65-74	52.1	56.5	\pm 0.92
75+	50.06	55.03	\pm 1.47

* U.S. norms as reported in Ware, Kosinsky & Keller, 1995.

SF-12 Individual Item Scores by Above or Below Average Physical Health Status

SF-12 Item	Group Average Score on SF-12 Item		
	Below Average Group*	Average Group	Above Average Group*
In general, would you say your health is excellent, very good, good, fair, or poor?	Good	Very good	Very good
Does YOUR HEALTH NOW LIMIT YOU IN MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf? Would you say you are limited a lot, a little, or not at all?	A little	Not at all	Not at all
How about CLIMBING SEVERAL FLIGHTS OF STAIRS? Would you say your health limits you a lot, a little, or not at all?	A little	Not at all	Not at all
Thinking about the past four weeks, have you ACCOMPLISHED LESS than you would like AS A RESULT OF YOUR PHYSICAL HEALTH?	Yes	No	No
During the past four weeks, were you limited in the KIND of work or other activities you could do as a result of your physical health?	Yes	No	No
In the past four weeks, did you ACCOMPLISH LESS than you would like AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?	No	No	No
During the last four weeks, did you have trouble doing work or other activities as CAREFULLY as usual AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?	No	No	No
During the past four weeks, how much did PAIN interfere with your normal work including both work outside the home and housework, would you say not at all, a little bit, moderately, quite a bit, or extremely?	Moderately	Not at all	Not at all
How much of the time during the past four weeks have you felt calm and peaceful? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	A good bit of the time	Most of the time	A good bit of the time
How much of the time during the PAST FOUR WEEKS did you have a lot of energy? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	Some of the time	A good bit of the time	Most of the time
How much of the time during the past four weeks have you felt downhearted and blue? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	A little of the time	A little of the time	A little of the time
During the last four weeks, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities, like visiting with friends, relatives, etc.?	A little of the time	None of the time	None of the time

* Individual PCS12 scale score above +6.53 (above average) or below -6.53 (below average).

SF-12 Individual Item Scores by Above or Below Average Mental Health Status

SF-12 Item	Group Average Score on SF-12 Item		
	Below Average Group*	Average Group	Above Average Group*
In general, would you say your health is excellent, very good, good, fair, or poor?	Good	Very good	Very good
Does YOUR HEALTH NOW LIMIT YOU IN MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf? Would you say you are limited a lot, a little, or not at all?	Not at all	Not at all	A little
How about CLIMBING SEVERAL FLIGHTS OF STAIRS? Would you say your health limits you a lot, a little, or not at all?	A little	Not at all	A little
Thinking about the past four weeks, have you ACCOMPLISHED LESS than you would like AS A RESULT OF YOUR PHYSICAL HEALTH?	No	No	No
During the past four weeks, were you limited in the KIND of work or other activities you could do as a result of your physical health?	No	No	No
In the past four weeks, did you ACCOMPLISH LESS than you would like AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?	Yes	No	No
During the last four weeks, did you have trouble doing work or other activities as CAREFULLY as usual AS A RESULT OF AN EMOTIONAL PROBLEM, such as feeling depressed or anxious?	Yes	No	No
During the past four weeks, how much did PAIN interfere with your normal work including both work outside the home and housework, would you say not at all, a little bit, moderately, quite a bit, or extremely?	A little bit	Not at all	A little bit
How much of the time during the past four weeks have you felt calm and peaceful? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	Some of the time	Most of the time	Most of the time
How much of the time during the PAST FOUR WEEKS did you have a lot of energy? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	Some of the time	A good bit of the time	Most of the time
How much of the time during the past four weeks have you felt downhearted and blue? Would you say all of the time, most of the time, a good bit of the time, some of the time, a little of the time, or none of the time?	Some of the time	A little of the time	None of the time
During the last four weeks, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities, like visiting with friends, relatives, etc.?	Some of the time	None of the time	None of the time

* Individual MCS12 scale score above +6.11 (above average) or below -6.11 (below average).

The Influence of Disease and Lifestyle on Quality of Life

**PCS12 and MCS12 Difference Scores for Persons With Various Medical Problems
and Lifestyle Characteristics: Adults Age 18 or Over, Utah, 1996**

Chronic Medical Conditions	PCS12 Difference Score		MCS12 Difference Score		% of Utah Adults (age 18 and over) with Condition
	Male	Female	Male	Female	
Diabetes diagnosed by a doctor	-4.5 ± 2.65	-5.0 ± 2.51	+0.6 ± 2.08	-2.3 ± 2.70	4.9%
Currently under medical care for asthma	-6.8 ± 3.10	-6.5 ± 2.31	+0.3 ± 2.63	-2.5 ± 1.98	4.7%
Currently under medical care for obstructive pulmonary disease (such as chronic bronchitis or emphysema)	-9.0 ± 4.53	-16.5 ± 6.29	-4.6 ± 3.74	-6.4 ± 6.74	1.3%
Currently under medical care for arthritis	-6.6 ± 3.00	-9.1 ± 1.65	-0.6 ± 1.80	-1.9 ± 1.76	9.0%
Stroke diagnosed by a doctor	-9.0 ± 4.19	-15.0 ± 3.51	+0.8 ± 5.72	-5.1 ± 6.45	1.1%
Heart disease, such as angina, congestive heart failure, or heart attack diagnosed by a doctor	-6.4 ± 3.49	-8.9 ± 3.23	-0.5 ± 2.18	-4.0 ± 2.98	4.6%

Medical Problems	PCS12 Difference Score		MCS12 Difference Score		% of Utah Adults (age 18 and over) with Condition
	Male	Female	Male	Female	
Current hearing loss in one or both ears	-1.2 ± 1.49	-2.7 ± 2.04	-1.2 ± 1.31	-2.3 ± 1.67	12.5%
Difficulty seeing, even when wearing glasses or contact lenses	-2.3 ± 2.21	-5.3 ± 2.47	-2.2 ± 2.74	-3.7 ± 2.04	4.3%
Current speech impairment	-3.7 ± 6.13	-8.6 ± 11.84	-1.2 ± 4.25	-8.0 ± 6.84	0.7%
Injured during the last 12 months	-2.4 ± 1.69	-3.9 ± 1.67	+0.7 ± 1.16	-1.7 ± 1.33	12.4%
Obesity (Body Mass Index ≥ 27.8 for males, 27.3 for females)	-1.5 ± 1.08	-3.9 ± 1.10	+1.1 ± 0.76	-1.0 ± 1.02	26.9%
Limited in usual activities by back/neck pain	-6.9 ± 4.39	-20.2 ± 6.35	+3.4 ± 3.84	-16.1 ± 14.68	88.2%
Hypertension diagnosed by a doctor	-0.7 ± 1.37	-3.1 ± 1.23	-0.2 ± 1.25	-2.0 ± 1.12	19.0%
High blood cholesterol diagnosed by a doctor	-0.7 ± 1.31	-3.2 ± 1.39	-0.5 ± 1.22	-1.6 ± 1.14	25.7%

Lifestyle Characteristic	PCS12 Difference Score		MCS12 Difference Score		% of Utah Adults (age 18 and over) with Condition
	Male	Female	Male	Female	
Exercises vigorously for 20 minutes at least three times a week	+1.8 ± 0.65	+1.1 ± 0.57	+1.0 ± 0.61	-0.3 ± 0.61	51.4%
Had at least one alcoholic beverage during the past month, but no more than 2 per day, on average	+0.8 ± 0.90	+0.3 ± 1.08	+0.5 ± 0.84	-1.6 ± 1.00	25.9%
Had 61 or more drinks during the last month	-1.6 ± 4.68	-1.7 ± 3.94	-1.9 ± 3.06	-6.5 ± 8.68	2.1%
Smokes cigarettes now	-2.4 ± 1.88	-4.1 ± 2.02	-1.3 ± 1.76	-4.0 ± 1.84	11.7%
Eats at least five servings of fruits or vegetables on a typical day	+2.2 ± 2.10	-0.9 ± 1.43	+1.0 ± 1.41	+0.3 ± 1.02	12.9%

The Health Status of Populations in Utah

The Health Status of Populations in Utah

Population Subgroup	PCS12		MCS12	
	Mean Scale Score	Difference Score	Mean Scale Score	Difference Score
Overall	50.2	0.0 \pm 0.33	53.2	0.0 \pm 0.31
Sex				
Male	50.9	+0.6 \pm 0.51	53.9	+0.8 \pm 0.45
Female	49.6	-0.5 \pm 0.47	52.5	-0.7 \pm 0.45
Age				
18-34	51.9	0.0 \pm 0.47	52.2	0.0 \pm 0.53
35-49	51.4	+0.2 \pm 0.63	52.6	-0.1 \pm 0.59
50-64	48.3	-0.4 \pm 0.98	54.5	+0.2 \pm 0.74
65+	44.0	0.0 \pm 1.08	56.1	0.0 \pm 0.78
Age & Sex				
Male				
18-34	52.5	+0.6 \pm 0.67	53.0	+0.1 \pm 0.76
35-49	51.8	+0.6 \pm 0.92	53.2	+0.5 \pm 0.82
50-64	49.0	+0.2 \pm 1.45	55.3	+1.0 \pm 1.02
65+	45.0	+0.9 \pm 1.71	57.2	+1.1 \pm 0.92
Female				
18-34	51.4	-0.6 \pm 0.65	51.4	-0.8 \pm 0.71
35-49	51.0	-0.2 \pm 0.86	52.0	-0.7 \pm 0.82
50-64	47.7	-1.0 \pm 1.35	53.7	-0.6 \pm 1.08
65+	43.3	-0.6 \pm 1.35	55.2	-0.8 \pm 1.16
Hispanic Status				
Hispanic	50.0	-1.1 \pm 1.43	51.6	-1.1 \pm 1.72
Non-Hispanic	50.2	+0.1 \pm 0.35	53.3	+0.1 \pm 0.31
Caucasian Status				
Caucasian	50.3	+0.1 \pm 0.35	53.2	0.0 \pm 0.33
Non-Caucasian	49.9	-1.3 \pm 1.80	52.6	-0.2 \pm 1.94
Caucasian Status & Sex				
Male				
Caucasian	51.0	+0.7 \pm 0.51	54.0	+0.8 \pm 0.47
Non-Caucasian	49.9	-1.5 \pm 2.74	53.1	+0.2 \pm 2.35
Female				
Caucasian	49.6	-0.5 \pm 0.49	52.5	-0.7 \pm 0.45
Non-Caucasian	50.0	-1.1 \pm 2.37	52.1	-0.6 \pm 3.04
Education				
Some High School	44.6	-5.4 \pm 1.55	50.6	-2.8 \pm 1.78
HS Grad/Some College	50.2	0.0 \pm 0.41	53.0	-0.1 \pm 0.41
Tech/Voc Degree	49.3	-0.8 \pm 2.10	53.5	+0.2 \pm 1.22
4-Yr. College Degree	51.7	+1.4 \pm 0.59	54.2	+0.9 \pm 0.53

The Health Status of Populations in Utah (continued)

Population Subgroup	PCS12		MCS12	
	Mean Scale Score	Difference Score	Mean Scale Score	Difference Score
Education & Sex				
Male				
Some High School	44.3	-5.8 ± 2.04	51.5	-1.7 ± 2.33
HS Grad/Some College	51.3	+0.8 ± 0.61	53.7	+0.7 ± 0.61
Tech/Voc Degree	47.4	-2.8 ± 3.78	53.3	0.0 ± 1.98
4-Yr. College Degree	52.2	+2.1 ± 0.71	54.9	+1.6 ± 0.69
Female				
Some High School	45.0	-4.9 ± 2.39	49.6	-4.0 ± 2.70
HS Grad/Some College	49.4	-0.7 ± 0.57	52.4	-0.8 ± 0.55
Tech/Voc Degree	51.1	+1.1 ± 1.33	53.7	+0.4 ± 1.45
4-Yr. College Degree	50.9	+0.6 ± 0.96	53.3	0.0 ± 0.82
Education & Age				
18-34				
Some High School	47.9	-4.1 ± 2.35	49.5	-2.7 ± 3.18
HS Grad/Some College	51.9	-0.1 ± 0.55	52.1	-0.1 ± 0.63
Tech/Voc Degree	53.0	+1.0 ± 1.31	51.4	-0.8 ± 2.06
4-Yr. College Degree	53.2	+1.2 ± 0.94	53.7	+1.5 ± 0.88
35-49				
Some High School	43.6	-7.7 ± 3.70	48.5	-4.0 ± 3.76
HS Grad/Some College	51.7	+0.5 ± 0.69	52.7	0.0 ± 0.76
Tech/Voc Degree	49.0	-2.1 ± 4.61	53.4	+0.6 ± 2.23
4-Yr. College Degree	52.4	+1.3 ± 0.94	53.0	+0.2 ± 0.94
50-64				
Some High School	43.1	-5.3 ± 3.76	54.2	-0.2 ± 3.49
HS Grad/Some College	47.8	-1.0 ± 1.39	54.2	-0.1 ± 1.04
Tech/Voc Degree	44.2	-4.9 ± 4.80	53.9	-0.3 ± 3.47
4-Yr. College Degree	51.1	+2.2 ± 1.16	55.1	+0.9 ± 1.14
65+				
Some High School	39.0	-5.1 ± 2.53	52.5	-3.6 ± 2.69
HS Grad/Some College	44.0	0.0 ± 1.27	55.5	-0.5 ± 1.06
Tech/Voc Degree	46.6	+2.5 ± 4.55	58.3	+2.2 ± 1.53
4-Yr. College Degree	45.5	+1.4 ± 2.57	58.1	+1.9 ± 1.23
Employment Status				
Full Time	51.6	+0.5 ± 0.41	53.2	+0.4 ± 0.43
Part Time	52.4	+1.3 ± 0.73	52.6	-0.2 ± 0.84
Retired	44.7	-0.2 ± 1.02	55.9	+0.3 ± 0.69
Homemaker	49.9	-0.6 ± 1.12	53.1	+0.1 ± 0.86
Student (primary status)	52.8	+0.9 ± 1.80	52.4	0.0 ± 1.96
Unemployed/ Other	40.6	-9.9 ± 2.61	46.7	-6.5 ± 2.41

The Health Status of Populations in Utah (continued)

Population Subgroup	PCS12		MCS12	
	Mean Scale Score	Difference Score	Mean Scale Score	Difference Score
Employment Status & Sex				
Male				
Full Time	51.9	+0.9 ± 0.55	54.0	+1.2 ± 0.53
Part Time	53.5	+2.4 ± 1.06	52.9	+0.2 ± 1.80
Retired	45.5	+0.2 ± 1.55	56.3	+0.7 ± 0.98
Homemaker	Too few cases		Too few cases	
Student (primary status)	53.8	+1.9 ± 2.21	53.3	+0.8 ± 3.04
Unemployed/ Other	43.4	-7.3 ± 3.94	49.2	-3.8 ± 2.82
Female				
Full Time	51.2	0.0 ± 0.65	52.1	-0.7 ± 0.73
Part Time	51.8	+0.8 ± 0.94	52.4	-0.5 ± 0.90
Retired	44.1	-0.6 ± 1.35	55.6	0.0 ± 0.94
Homemaker	49.8	-0.7 ± 1.12	53.2	+0.1 ± 0.88
Student (primary status)	51.6	-0.3 ± 2.76	51.3	-0.9 ± 2.47
Unemployed/ Other	37.3	-13.0 ± 3.04	43.7	-9.7 ± 3.65
Marital Status				
Married	50.1	+0.1 ± 0.43	53.9	+0.6 ± 0.35
Div/Wid/Sep	48.4	-0.5 ± 0.88	51.4	-2.4 ± 0.94
Never Married	51.9	+0.1 ± 0.73	51.8	-0.5 ± 0.92
Marital Status & Sex				
Male				
Married	50.6	+0.6 ± 0.65	54.7	+1.4 ± 0.47
Div/Wid/Sep	50.4	+0.5 ± 1.31	50.9	-2.5 ± 1.78
Never Married	52.4	+0.6 ± 0.94	52.5	+0.2 ± 1.20
Female				
Married	49.7	-0.4 ± 0.57	53.1	-0.2 ± 0.51
Div/Wid/Sep	47.2	-1.1 ± 1.14	51.7	-2.4 ± 1.06
Never Married	51.2	-0.5 ± 1.14	51.0	-1.4 ± 1.39
Income Category				
< \$15K	43.7	-5.3 ± 1.35	49.7	-4.0 ± 1.37
\$15-\$35K	49.2	-0.9 ± 0.65	52.8	-0.5 ± 0.65
\$35-\$55K	50.8	+0.2 ± 0.67	53.1	+0.1 ± 0.61
> \$55K	52.5	+1.7 ± 0.61	54.0	+1.0 ± 0.53
Income Category & Sex				
Male				
< \$15K	46.0	-3.9 ± 2.08	50.0	-3.2 ± 2.53
\$15-\$35K	50.2	0.0 ± 0.92	53.5	+0.3 ± 0.92
\$35-\$55K	51.2	+0.6 ± 1.00	54.2	+1.2 ± 0.78
> \$55K	52.4	+1.7 ± 0.90	54.2	+1.4 ± 0.80

The Health Status of Populations in Utah (continued)

Population Subgroup	PCS12		MCS12	
	Mean Scale Score	Difference Score	Mean Scale Score	Difference Score
Female				
< \$15K	42.4	-6.1 \pm 1.72	49.5	-4.4 \pm 1.59
\$15-\$35K	48.4	-1.6 \pm 0.92	52.1	-1.2 \pm 0.90
\$35-\$55K	50.5	-0.1 \pm 0.86	51.9	-1.1 \pm 0.92
> \$55K	52.6	+1.8 \pm 0.78	53.9	+0.9 \pm 0.67
Income Category & Age				
18-34				
< \$15K	49.6	-2.4 \pm 1.59	50.3	-1.9 \pm 1.69
\$15-\$35K	51.7	-0.2 \pm 0.74	52.1	-0.2 \pm 0.88
\$35-\$55K	52.3	+0.4 \pm 0.80	52.0	-0.2 \pm 0.96
> \$55K	52.5	+0.5 \pm 1.20	53.0	+0.8 \pm 1.18
35-49				
< \$15K	41.9	-9.4 \pm 3.68	43.1	-9.4 \pm 4.27
\$15-\$35K	49.6	-1.6 \pm 1.63	51.1	-1.5 \pm 1.51
\$35-\$55K	51.5	+0.3 \pm 1.23	52.7	0.0 \pm 1.06
> \$55K	53.1	+2.0 \pm 0.69	53.8	+1.0 \pm 0.69
50-64				
< \$15K	36.6	-11.8 \pm 3.88	48.1	-6.3 \pm 3.59
\$15-\$35K	46.4	-2.2 \pm 2.37	52.7	-1.6 \pm 2.08
\$35-\$55K	48.1	-0.6 \pm 2.00	55.0	+0.7 \pm 1.51
> \$55K	51.4	+2.4 \pm 1.41	55.8	+1.6 \pm 0.84
65+				
< \$15K	39.8	-4.0 \pm 2.59	53.5	-2.4 \pm 2.02
\$15-\$35K	43.0	-1.0 \pm 1.63	56.8	+0.7 \pm 1.35
\$35-\$55K	45.0	+0.8 \pm 2.41	57.0	+0.9 \pm 1.53
> \$55K	50.4	+6.1 \pm 4.21	57.2	+1.0 \pm 1.94
Religion				
Protestant	50.1	+0.6 \pm 1.29	53.5	-0.1 \pm 1.10
Catholic	50.1	-0.4 \pm 1.25	52.7	-0.5 \pm 1.33
LDS	50.2	+0.1 \pm 0.41	53.6	+0.3 \pm 0.37
Other	49.8	-0.8 \pm 1.88	51.7	-1.4 \pm 1.49
No Religion	50.9	-0.4 \pm 1.00	51.6	-1.0 \pm 1.16
Religion & Sex				
Male				
Protestant	50.1	+0.7 \pm 2.02	54.6	+0.9 \pm 1.67
Catholic	52.3	+1.6 \pm 1.37	52.9	-0.1 \pm 1.74
LDS	50.9	+0.7 \pm 0.61	54.4	+1.2 \pm 0.53
Other	50.8	-0.3 \pm 2.72	52.2	-0.7 \pm 1.98
No Religion	50.5	-0.8 \pm 1.45	52.3	-0.2 \pm 1.49
Female				
Protestant	50.0	+0.6 \pm 1.67	52.6	-0.9 \pm 1.41
Catholic	47.7	-2.5 \pm 2.04	52.4	-0.9 \pm 2.04
LDS	49.5	-0.6 \pm 0.55	52.8	-0.5 \pm 0.51
Other	48.8	-1.4 \pm 2.59	51.2	-2.1 \pm 2.25
No Religion	51.5	+0.2 \pm 1.31	50.6	-2.0 \pm 1.80

The Health Status of Populations in Utah (continued)

Population Subgroup	PCS12		MCS12	
	Mean Scale Score	Difference Score	Mean Scale Score	Difference Score
Wasatch Front Resident				
Wasatch Front	50.4	+0.1 \pm 0.43	53.1	0.0 \pm 0.39
Non-Wasatch Front	49.7	-0.3 \pm 0.35	53.4	+0.1 \pm 0.35
Wasatch Front Resident & Age				
18-34				
Wasatch Front	51.9	-0.1 \pm 0.57	52.1	-0.2 \pm 0.65
Non-Wasatch Front	52.1	+0.2 \pm 0.51	52.8	+0.6 \pm 0.59
35-49				
Wasatch Front	51.6	+0.4 \pm 0.78	52.6	-0.8 \pm 0.73
Non-Wasatch Front	50.8	-0.3 \pm 0.67	52.6	-0.1 \pm 0.65
50-64				
Wasatch Front	48.3	-0.5 \pm 1.25	54.6	+0.3 \pm 0.94
Non-Wasatch Front	48.6	-0.1 \pm 0.90	54.0	-0.3 \pm 0.76
65+				
Wasatch Front	44.6	+0.6 \pm 1.43	56.2	+0.2 \pm 1.04
Non-Wasatch Front	42.5	-1.5 \pm 1.16	55.6	-0.4 \pm 0.84
Local Health District (age-adjusted)				
Bear River	50.2	-0.1 \pm 0.80	53.5	+0.4 \pm 0.76
Central	50.1	-0.1 \pm 0.78	53.1	-0.1 \pm 0.73
Davis	51.3	+1.1 \pm 0.74	53.4	+0.2 \pm 0.78
Salt Lake	50.0	-0.2 \pm 0.69	53.0	-0.2 \pm 0.63
Southeastern	48.2	-2.1 \pm 0.94	52.7	-0.4 \pm 0.92
Southwest	50.6	+0.4 \pm 0.84	53.7	+0.5 \pm 0.80
Summit	51.7	+1.5 \pm 0.98	53.7	+0.4 \pm 0.84
Tooele	49.5	-0.8 \pm 0.86	52.6	-0.5 \pm 0.82
Uintah	49.1	-1.1 \pm 0.90	52.7	-0.4 \pm 1.00
Utah	50.6	+0.3 \pm 0.84	53.4	+0.3 \pm 0.80
Wasatch	50.7	+0.5 \pm 0.76	53.8	+0.6 \pm 0.80
Weber/Morgan	49.9	-0.4 \pm 0.90	53.1	-0.1 \pm 0.84

A Profile of Utahns With Poor Health Status

In the following tables, the percentage of adults with below average physical and mental health has been projected onto the total population of adults in Utah in 1996 (1,343,195) to produce estimates of the number of persons in Utah in each category used in the table.

Persons With Poor Physical Health by Sex: Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Sex				
Males	653,554	549,000	104,600	41.4%
Females	689,641	541,600	148,000	58.6%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Sex: Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Sex				
Males	653,554	564,300	89,300	39.4%
Females	689,641	552,200	137,400	60.6%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Physical Health by Age Group:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Age Group				
18-34	541,093	453,900	87,200	34.1%
35-49	403,890	338,800	65,100	25.5%
50-64	211,745	164,200	47,500	18.6%
Over 64	186,467	130,700	55,800	21.8%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Mental Health by Age Group:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Age Group				
18-34	541,093	445,400	95,700	42.4%
35-49	403,890	332,300	71,600	31.7%
50-64	211,745	179,200	32,500	14.4%
Over 64	186,467	160,500	26,000	11.5%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Physical Health by Sex and Age Group:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Males				
18-34	267,646	233,200	34,400	13.5%
35-49	201,158	174,600	26,600	10.4%
50-64	103,867	81,800	22,100	8.6%
65 and Over	80,883	57,600	23,300	9.1%
Females				
18-34	273,447	220,500	52,900	20.7%
35-49	202,732	164,100	38,600	15.1%
50-64	107,878	82,600	25,300	9.9%
Over 64	105,584	73,100	32,500	12.7%
Total	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Sex and Age Group:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Males				
18-34	267,646	229,500	38,100	16.9%
35-49	201,158	170,200	31,000	13.7%
50-64	103,867	91,700	12,200	5.4%
65 and Over	80,883	73,500	7,400	3.3%
Females				
18-34	273,447	215,700	57,700	25.6%
35-49	202,732	162,000	40,700	18.0%
50-64	107,878	87,600	20,300	9.0%
Over 64	105,584	87,200	18,400	8.1%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Physical Health by Hispanic Ethnicity:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Hispanic Ethnicity				
Hispanic	71,189	55,800	15,400	6.1%
Non-Hispanic	1,272,006	1,034,900	237,100	93.9%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Mental Health by Hispanic Ethnicity:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Hispanic Ethnicity				
Hispanic	71,189	54,900	16,300	7.2%
Non-Hispanic	1,272,006	1,062,200	209,800	92.8%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Physical Health by Caucasian/non-Caucasian Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Caucasian				
Caucasian	1,276,035	1,037,400	238,600	95.2%
Non-Caucasian**	67,160	55,100	12,100	4.8%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Non-Caucasian population estimated at 5%.

**Persons With Poor Mental Health by Caucasian/non-Caucasian Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Caucasian				
Caucasian	1,276,035	1,061,100	214,900	94.6%
Non-Caucasian**	67,160	55,000	12,200	5.4%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Non-Caucasian population estimated at 5%.

**Persons With Poor Physical Health by Education Level:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Education Level				
Some HS	83,278	48,600	34,700	13.8%
HS Grad/Some College	807,260	653,300	154,000	61.3%
Tech/Voc Degree	69,846	55,900	13,900	5.5%
4Yr+ College	382,811	334,000	48,800	19.4%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Mental Health by Education Level:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Education Level				
Some HS	83,278	59,400	23,900	10.6%
HS Grad/Some College	807,260	663,300	144,000	63.7%
Tech/Voc Degree	69,846	60,300	9,500	4.2%
4Yr+ College	382,811	334,100	48,700	21.5%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

**Persons With Poor Physical Health by Employment Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Employment Status				
Full Time	751,196	638,700	112,500	44.5%
Part Time	178,491	155,000	23,500	9.3%
Retired	178,310	127,600	50,700	20.1%
Homemaker	126,183	99,900	26,300	10.4%
Student**	50,234	42,900	7,300	2.9%
Unemployed/Other	58,781	26,400	32,400	12.8%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Includes only persons whose primary status is "student."

**Persons With Poor Mental Health by Employment Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Employment Status				
Full Time	751,196	631,700	119,500	52.4%
Part Time	178,491	146,800	31,700	13.9%
Retired	178,310	154,700	23,600	10.3%
Homemaker	126,183	106,900	19,300	8.5%
Student**	50,234	39,300	10,900	4.8%
Unemployed/Other	58,781	35,700	23,100	10.1%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Includes only persons whose primary status is "student."

**Persons With Poor Physical Health by Marital Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Marital Status				
Married	921,432	748,500	172,900	68.3%
Div./Sep./Wid.**	179,988	139,200	40,800	16.1%
Never Married	241,775	202,500	39,300	15.5%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Divorced, separated, or widowed.

**Persons With Poor Mental Health by Marital Status:
Adults Age 18 or Over, Utah, 1996**

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Marital Status				
Married	921,432	793,600	127,800	56.3%
Div./Sep./Wid.**	179,988	131,000	49,000	21.6%
Never Married	241,775	191,600	50,200	22.1%
All Adults	1,343,195	1,119,300	223,900	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

** Divorced, separated, or widowed.

Persons With Poor Physical Health by Income Category:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Income Category				
Under \$15K	96,710	58,300	38,400	15.2%
\$15 - \$35K	411,018	317,100	93,900	37.3%
\$35 - \$55K	436,538	363,900	72,600	28.8%
Over \$55K	400,272	353,300	47,000	18.7%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Income Category:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Income Category				
Under \$15K	96,710	65,600	31,100	13.4%
\$15 - \$35K	411,018	328,200	82,800	35.7%
\$35 - \$55K	436,538	364,000	72,500	31.2%
Over \$55K	400,272	354,500	45,800	19.7%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Physical Health by Religion:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Religion				
Protestant	116,858	96,200	20,700	8.1%
Catholic	91,337	71,700	19,600	7.7%
LDS	910,686	736,900	173,800	68.3%
Other	91,337	72,000	19,300	7.6%
No Religion	131,633	110,700	20,900	8.2%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Religion:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Religion				
Protestant	116,858	97,800	19,100	8.4%
Catholic	91,337	73,700	17,600	7.7%
LDS	910,686	767,000	143,700	63.1%
Other	91,337	71,400	19,900	8.7%
No Religion	131,633	104,200	27,400	12.0%
All Adults	1,343,195	1,116,600	226,600	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Physical Health by Wasatch Front/non-Wasatch Front:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Wasatch Front				
Wasatch Front	1,040,544	847,300	193,200	76.5%
Non-Wasatch Front	302,651	243,500	59,200	23.5%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Wasatch Front/non-Wasatch Front:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Wasatch Front				
Wasatch Front	1,040,544	865,100	175,400	77.4%
Non-Wasatch Front	302,651	251,600	51,100	22.6%
All Adults	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Physical Health by Local Health District:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Physical Health*	Adults With Below Average Physical Health*	Percentage Distribution of Adults With Below Average Physical Health
Local Health District				
Bear River	80,032	65,500	14,500	5.7%
Central	39,126	32,100	7,000	2.8%
Davis	145,099	126,300	18,800	7.4%
Salt Lake	565,371	448,600	116,800	46.2%
Southeastern	36,167	26,300	9,900	3.9%
Southwest	76,198	61,500	14,700	5.8%
Summit	15,630	13,500	2,100	0.8%
Tooele	18,489	14,600	3,900	1.5%
Uintah	24,660	19,600	5,100	2.0%
Utah	205,458	170,600	34,900	13.8%
Wasatch	8,104	6,700	1,400	0.6%
Weber/Morgan	128,861	105,200	23,700	9.4%
All Adults in Utah	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Persons With Poor Mental Health by Local Health District:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Adults With Average or Above Average Mental Health*	Adults With Below Average Mental Health*	Percentage Distribution of Adults With Below Average Mental Health
Local Health District				
Bear River	80,032	67,700	12,300	5.4%
Central	39,126	32,700	6,400	2.8%
Davis	145,099	123,500	21,600	9.5%
Salt Lake	565,371	467,500	97,900	43.2%
Southeastern	36,167	29,500	6,700	3.0%
Southwest	76,198	63,200	13,000	5.7%
Summit	15,630	13,500	2,100	0.9%
Tooele	18,489	15,000	3,500	1.5%
Uintah	24,660	19,800	4,900	2.2%
Utah	205,458	169,500	36,000	15.9%
Wasatch	8,104	6,900	1,200	0.5%
Weber/Morgan	128,861	107,800	21,100	9.3%
All Adults in Utah	1,343,195	1,090,700	252,500	100.0%

* Figures in these columns do not sum exactly to the total because of missing values on the grouping variables.

Health Insurance Status by Physical Health Status and Age:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Insured	Uninsured	Percentage of Persons Who Were Uninsured	Percentage Distribution of Uninsured Persons
Average or Better					
18-34	453,900	385,000	68,900	15.2% \pm 2.5%	51.7%
35-49	338,800	312,700	26,100	7.7% \pm 2.0%	19.5%
50-64	164,200	156,000	8,200	5.0% \pm 2.2%	6.2%
65 and Over	130,700	129,300	1,400	1.1% \pm 1.5%	1.1%
All Average or Better	1,090,700	984,400	106,300	9.8% \pm 1.3%	78.4%
Below Average					
18-34	87,200	75,700	11,500	13.2% \pm 5.2%	8.6%
35-49	65,100	51,100	14,000	21.6% \pm 8.1%	10.5%
50-64	47,500	44,800	2,700	5.6% \pm 3.5%	2.0%
65 and Over	55,800	55,200	600	1.0% \pm 1.6%	0.4%
All Average or Better	252,500	223,300	29,200	11.6% \pm 3.0%	21.6%
All Adults	1,343,195	1,211,600	131,600	9.8% \pm 1.0%	100.0%

Health Insurance Status by Mental Health Status and Age:
Adults Age 18 or Over, Utah, 1996

	Total Persons in Utah Age 18 or Over	Insured	Uninsured	Percentage of Persons Who Were Uninsured	Percentage Distribution of Uninsured Persons
Average or Better					
18-34	445,400	381,400	64,000	14.4% \pm 2.5%	49.0%
35-49	332,300	304,200	28,100	8.5% \pm 2.2%	21.5%
50-64	17,920	17,100	800	4.3% \pm 1.8%	5.3%
65 and Over	160,500	158,700	1,800	1.1% \pm 1.3%	1.1%
All Average or Better	1,116,600	1,013,400	103,200	9.2% \pm 1.3%	73.6%
Below Average					
18-34	98,700	81,800	16,900	17.2% \pm 5.5%	11.2%
35-49	71,600	59,600	12,000	16.8% \pm 6.4%	8.2%
50-64	32,500	29,300	3,200	9.8% \pm 7.3%	3.5%
65 and Over	26,000	25,800	200	0.7% \pm 0.9%	0.3%
All Average or Better	226,600	194,200	32,400	14.3% \pm 3.4%	26.4%
All Adults	1,343,195	1,211,600	131,600	9.8% \pm 1.0%	100.0%

Time Since Last Pap Smear by Physical Health Status:
Women Age 18 or Over, Utah, 1996

	Women Age 18 or Over With Average or Above Physical Health	Women Age 18 or Over With Below Average Physical Health
Never	8.2%	9.9%
2 to <6 mos.	26.0%	19.6%
6 mos. to <1 yr.	25.6%	25.6%
1 to <2 yrs.	19.6%	16.6%
2 to <4 yrs.	10.9%	14.8%
4 or more yrs.	9.8%	13.6%
Total	100.0%	100.0%

Time Since Last Pap Smear by Mental Health Status:
Women Age 18 or Over, Utah, 1996

	Women Age 18 or Over With Average or Above Mental Health	Women Age 18 or Over With Below Average Mental Health
Never	8.5%	8.7%
2 to <6 mos.	24.4%	25.3%
6 mos. to <1 yr.	26.4%	22.4%
1 to <2 yrs.	18.9%	19.4%
2 to <4 yrs.	12.1%	10.0%
4 or more yrs.	9.7%	14.3%
Total	100.0%	100.0%

Time Since Last Mammogram by Physical Health Status:
Women Age 40 or Over, Utah, 1996

	Women Age 40 or Over With Average or Above Physical Health	Women Age 40 or Over With Below Average Physical Health
Never	15.9%	14.0%
< 1 yr.	54.6%	51.2%
2 yrs.	15.3%	15.2%
3 to 4 yrs.	8.7%	10.0%
5 or more yrs.	5.6%	9.6%
Total	100.0%	100.0%

Time Since Last Mammogram by Mental Health Status:
Women Age 40 or Over, Utah, 1996

	Women Age 40 or Over With Average or Above Mental Health	Women Age 40 or Over With Below Average Mental Health
Never	15.9%	13.9%
< 1 yr.	54.7%	50.2%
2 yrs.	14.3%	19.5%
3 to 4 yrs.	9.5%	7.0%
5 or more yrs.	5.8%	9.4%
Total	100.0%	100.0%

Colorectal Exam in Last Year by Physical Health Status:
Persons Age 40 or Over, Utah, 1996

	Persons Age 40 or Over With Average or Above Physical Health	Persons Age 40 or Over With Below Average Physical Health
Yes	45.4%	43.2%
No	54.6%	56.8%
Total	100.0%	100.0%

Colorectal Exam in Last Year by Mental Health Status:
Persons Age 40 or Over, Utah, 1996

	Persons Age 40 or Over With Average or Above Mental Health	Persons Age 40 or Over With Below Average Mental Health
Yes	46.5%	36.7%
No	53.5%	63.3%
Total	100.0%	100.0%

Type of Primary Provider by Physical Health Status:
Persons Age 18 or Over, Utah, 1996

	Persons Age 18 or Over With Average or Above Physical Health	Persons Age 18 or Over With Below Average Physical Health
No primary provider or location	22.0%	15.9%
Routine location, no particular provider	8.7%	10.2%
Family or general practitioner	48.2%	41.1%
Other M.D.	18.4%	29.1%
Mid-level practitioner	2.7%	3.6%
Total	100.0%	100.0%

Type of Primary Provider by Mental Health Status:
Persons Age 18 or Over, Utah, 1996

	Persons Age 18 or Over With Average or Above Mental Health	Persons Age 18 or Over With Below Average Mental Health
No primary provider or location	20.6%	21.9%
Routine location, no particular provider	8.6%	10.8%
Family or general practitioner	48.0%	40.8%
Other M.D.	20.4%	21.3%
Mid-level practitioner	2.4%	5.1%
Total	100.0%	100.0%

Primary Setting Where Health Care is Sought by Physical Health Status:
Persons Age 18 or Over, Utah, 1996

	Persons Age 18 or Over With Average or Above Physical Health	Persons Age 18 or Over With Below Average Physical Health
Doctor's office	73.3%	69.2%
Urgent care center	10.0%	12.2%
Public health clinic	6.8%	7.1%
Hospital Emergency Room	3.7%	2.9%
Other hospital setting	1.7%	4.0%
Military/V.A. setting	1.3%	1.9%
Nowhere	1.2%	1.0%
Other	2.1%	1.8%
Total	100.0%	100.0%

Primary Setting Where Health Care is Sought by Mental Health Status:
Persons Age 40 or Over, Utah, 1996

	Persons Age 18 or Over With Average or Above Mental Health	Persons Age 18 or Over With Below Average Mental Health
Doctor's office	73.5%	67.1%
Urgent care center	10.1%	12.2%
Public health clinic	6.1%	10.4%
Hospital Emergency Room	3.3%	4.7%
Other hospital setting	2.4%	1.2%
Military/V.A. setting	1.4%	1.1%
Nowhere	1.3%	0.4%
Other	1.8%	3.0%
Total	100.0%	100.0%

Number of Outpatient Medical Visits in Last 12 Months by Age and
Physical Health Status: Persons Age 18 or Over, Utah, 1996

	Adults With Average and Above Physical Health	Adults With Below Average Physical Health
18-34	2.7 ± 0.71	7.5 ± 3.12
35-49	2.3 ± 0.86	4.3 ± 2.51
50-64	3.2 ± 0.82	3.9 ± 2.43
65+	2.4 ± 0.57	11.4 ± 4.72
All Adults	2.6 ± 0.45	6.9 ± 2.08

Number of Outpatient Medical Visits in Last 12 Months by Age and
Mental Health Status: Persons Age 18 or Over, Utah, 1996

	Adults With Average and Above Mental Health	Adults With Below Average Mental Health
18-34	3.6 ± 0.49	3.4 ± 0.74
35-49	2.0 ± 0.36	6.0 ± 1.63
50-64	3.4 ± 0.45	2.8 ± 0.37
65+	5.4 ± 1.38	10.1 ± 3.93
All Adults	3.3 ± 0.61	5.2 ± 1.82

Percentage With Overnight Hospital Stay in the Last 12 Months by Physical Health Status and Age: Persons Age 18 or Over, Utah, 1996

	Adults With Average and Above Physical Health	Adults With Below Average Physical Health
18-34	0.9% ± 1.43%	4.3% ± 5.68%
35-49	1.8% ± 2.47%	4.4% ± 4.88%
50-64	3.7% ± 3.49%	3.0% ± 3.90%
65+	2.9% ± 3.27%	43.7% ± 23.30%
All Adults	1.8% ± 1.20%	12.9% ± 8.09%

Percentage with Overnight Hospital Stay in the Last 12 Months by Mental Health Status and Age: Persons Age 18 or Over, Utah, 1996

	Adults With Average and Above Mental Health	Adults With Below Average Mental Health
18-34	1.7% ± 1.76%	0.0% ± *
35-49	0.7% ± 0.88%	10.2% ± 12.13%
50-64	3.3% ± 3.25%	5.2% ± 6.27%
65+	17.5% ± 13.96%	32.4% ± 30.13%
All Adults	3.5% ± 2.06%	8.8% ± 6.72%

* While a confidence interval can be computed for a score of 0%, it has not been provided here.

TECHNICAL NOTES

General Technical Background to the 1996 Health Status Survey

Introduction

The purpose of this section is to provide the reader with a general methodological overview of the project. Persons interested in obtaining additional or more detailed information may contact:

Bureau of Surveillance and Analysis
Office of Public Health Data
Utah Department of Health
288 North 1460 West
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Salt Lake City, UT 84114-2875
Phone: (801) 538-6108
E-mail: hlhda.phdata@state.ut.us

Sample Design

The 1996 Utah Health Status Survey represents the third such survey; previous surveys were conducted in 1986 and 1991. The statistical estimates in this report are based on *1996 Utah Health Status Survey* data.

The sample was a **complex survey sample** designed to be representative of all Utahns. It is best described as a weighted probability sample of approximately 6,300 households disproportionately stratified by twelve local health districts that cover the entire state. Five hundred household interviews were conducted in each health district, except Salt Lake City/County Health District, in which eight hundred household interviews were conducted in order to increase the precision of statewide estimates.

A **single stage, non-clustered, equal probability of selection telephone calling design** was used to generate telephone numbers, more specifically referred to as the *Casady-Lepkowski* (1993) calling design. This method begins by building a *base sampling frame* consisting of all possible telephone numbers from all working prefixes in Utah. Telephone numbers are arranged sequentially into groups of 100 by selecting all telephone numbers within an area code and prefix, plus the first and second digits of the suffix (e.g., 801-538-10XX represents a group that includes all 100 phone numbers between 801-538-1000 and 801-538-1099). Each group of 100 telephone numbers is classified as either high density (at least one residential listing) or low density (no listed residential phone numbers in the group). All low density groups are removed, and high density groups are retained. Telephone numbers are randomly selected from the high-density list. This sampling design ensures that both listed and unlisted phone numbers are included in the sample.

The survey interview was conducted with **one randomly-selected adult** (age 18 or older) in each household. To select this person, Gallup interviewers collected household membership information from the household contact person (the person who answered the telephone). One household member was then selected at random from the list of all household members age 18 or over. Survey questions were then asked about either, 1) all household members, 2) the survey respondent only, 3) a randomly selected adult or child household member (selected using the same method as was used to select the respondent), or 4) the household as a whole. Thus, the survey sample varies, depending on the within-household reference sample that was used for each set of survey questions. Each within-household reference sample has known probabilities of selection and can be generalized to the Utah population.

Survey Data Collection

The Utah Department of Health contracted with The Gallup Organization to collect the survey data. Gallup incorporated the telephone survey instrument into a **computer-assisted random digit dialing software program**, called SURVENT. Interviews were conducted by trained interviewers in a supervised environment across six sites. Interviews were conducted in Spanish when appropriate.

Computer-assisted telephone interviewing was chosen as the method of data collection for several reasons. First, it yields higher response rates, thus resulting in a more representative sample and reducing the amount of bias inherent in mail survey response rates. Second, it helps reduce non-sampling error by standardizing the data collection process. Data-entry errors are reduced because interviewers are not allowed to enter non-valid codes. It was also efficient because it allowed interviewers to enter responses directly into the database.

The survey questionnaire was divided into *core* and *supplemental modules*. Core questions were asked of all households in the sample. Table 1 describes the types of “core” questions that were asked, and about whom they were asked. Notice that *not all questions were asked with regard to everyone in the household*.

Table 1.
CORE MODULE QUESTIONS

<u>Question Topic</u>	<u>Within-Household Reference Sample</u>
Demographic characteristics	All household members
Presence of chronic medical condition	All household members
Health insurance status	All household members
Injury incidence/safety issues	All household members
Lifestyle (smoking, drinking, exercise)	All household members
Subjective mental/physical health (SF12)	Respondent only (randomly-selected adult)
Health screening exam usage	Respondent only (randomly-selected adult)
Access to care/primary provider	Randomly-selected household member of any age
Household-level demographic characteristics	The household as a whole

In addition to the core survey questions (above), one of six different *supplemental modules* was administered to primarily non-overlapping randomly-assigned subsets of (approximately 1,000) households. Table 2 shows the types of questions asked in the supplemental module questions, and about whom they were asked.

Table 2.
SUPPLEMENTAL MODULE QUESTIONS

<u>Type of Question</u>	<u>Within-Household Reference Sample</u>
Limitations of activities	All household members
Migration	Respondent only (randomly-selected adult)
Health Plan Consumer Satisfaction	Respondent only (randomly-selected adult)
Fertility	Respondent or spouse only
Health Care Utilization	Randomly-selected household member of any age
Interpersonal violence	The household as a whole

*Note: All supplemental module questions were asked only of a subset of households.

While both core and supplemental modules yielded sufficient sample sizes to construct state-level estimates for the Utah population, the information collected from supplemental modules was not intended for use in district-level analyses.

Cooperation rate

The interview process took place over a three month period (from June to August, 1996), and resulted in a cooperation rate of 66.3%. If necessary, up to nine telephone attempts were made to contact a selected household. After a randomly-selected survey respondent was identified, up to nine attempts were made to conduct the interview with that person.

Weighting and Estimation Methods

Post-survey weighting adjustments were made so that the Health Status Survey findings could be more accurately generalized to Utah's population. Two types of post-survey weighting adjustments were made, one that adjusted for random sampling variation, and one that adjusted for disproportionate sampling (such as the over-sampling of smaller local health districts across the state). Although the two types of adjustment are distinct conceptually, they were accomplished in a single step.

The post-survey weighting adjustments weighted the sample to be proportionately consistent with the age, sex, geographic, and Hispanic status distribution of the 1996 Utah population. Utah population estimates by sex, single year of age, and county of residence were provided by the Utah Governor's Office of Planning and Budget (GOPB) (the estimates used were those compiled in 1994). Estimates of Utah's Hispanic population for 1996 were derived by calculating the average annual rate of increase of Hispanic persons for each health district using data from 1990 to 1994 Bureau of the Census reports, and then projecting those increases to 1996 GOPB local health district population counts. Total state estimates for Hispanic persons were calculated by summing across local health districts.

Separate post-survey weighting variables were constructed for use with each different subsample (e.g., a single local health district versus the entire state, respondents-only versus all household members, etc.). In all, there are 14 different weight variables that are used according to which questions are being analyzed and whether the user wants to generalize to a local health district or the entire state of Utah.

The post-survey weighting variables adjusted for the following factors:

1. The number of **phones** in the household.
2. The total **number of persons in the household** to which the data will be generalized (1 for questions that were asked about every household member, the number of adults in the household for questions that were asked only of the respondent, the number of persons in the household for questions that were asked of a randomly-selected household member).
3. The proportion of **Hispanic persons** in each local health district.
4. The **age and sex** distribution of each local health district.
5. The probabilities of selection for each **local health district**.

Population count estimates. Producing the population count estimates in the reference tables involved a number of steps. Once a percentage was calculated (e.g., the percentage uninsured) using appropriately weighted survey data, a population count (N) to which the percentage applied was estimated. In some cases analyses referenced certain age or sex groups, Hispanic persons or combinations of Utah counties. These total population group counts were readily available from the sources described earlier. However, for other groups where population counts were largely unavailable (e.g., analyses that examined the distribution of adult males by marital status), the population counts were estimated. This was achieved by multiplying the appropriate 1996 population total for that group (from 1996 GOPB estimates) by a proportion obtained from a frequency distribution or cross tabulation analysis of survey data. For instance, to calculate a population count for adult males who were married, the population of adult males from GOPB was multiplied by percentage of married adult males in the 1996 Utah Health Status Survey sample. Thus, any population count estimates not derived directly from existing age, sex, Hispanic status or county population estimates were derived from 1996 Health Status Survey data.

Missing Values. Another consideration that affected the presentation of the population estimates in table format was the inclusion or exclusion of missing values (“don’t know” and “refused to answer”). Population percentage estimates were calculated after removing the “don’t know” and “refused to answer” responses from the denominator. This, in effect, assumed that persons who gave these answers were distributed identically on the variable of interest to those who gave a valid answer to that variable. For instance, that among those who did not know whether they were insured, we assumed that 90.47% of them were insured and 9.53% were not insured -- percentages identical to those found among the sample members who answered the question with a valid response.

Removing the missing cases from an analysis is rather simple and straightforward for analyses of a single variable. However, when one variable is cross-tabulated by another variable, all missing cases from both variables must be removed from the analysis. Removing the missing cases in itself is not a problem. However, a problem is encountered when a population estimate for a given variable, such as the percentage of all Utahns that have health insurance, differs slightly from an analysis of “all Utahns” versus an analysis of “all Utahns by age group.” This is because the missing cases on the age variable have been removed from one analysis and not from another. Since the percentage of all Utahns that have health insurance was calculated on slightly different samples, the result is slightly different. This problem was resolved by reporting the best population estimate available for any given population subgroup. For instance, in the table of insurance rates for all Utahns by age, the population estimate from an analysis that includes all Utahns, regardless of whether they reported missing values on the age variable has been substituted for the original total row in that table. The only drawback to this strategy is that the population count figures for Utahns with and without health insurance in tables like the

“Utahns by Age Group” table do not sum to the same number derived from the analysis of all Utahns regardless of whether they had missing values on the age variable. As a result, the tables appear as though they do not “add up.”

Limitations and Other Special Considerations

Estimates developed from the sample may differ from the results of a complete census of all households in Utah due to two types of error, sampling and non-sampling error. Each type of error is present in estimates based on a survey sample. Good survey design and data collection techniques serve to minimize both sources of error.

Sampling error refers to random variation that occurs because only a subset of the entire population is sampled and used to estimate the finding in the entire population. It is often mis-termed “margin of error” in popular use, and is typically expressed as the “plus or minus” term, as in the following example:

“The percentage of those polled who said they would vote for Bill Clinton was 52%, plus or minus 2%.”

Because local health districts were disproportionately stratified and then weighted to reflect the Utah population, the sample was considered a complex survey sample design. Estimating the sampling error for a complex survey design requires special statistical techniques, derived from the standard error for each estimate. SUDAAN software (Research Triangle Institute) was chosen to estimate the standard errors of the survey estimates because it employs a statistical routine (Taylor-series expansion) that accounts for the complex survey design.

Reference tables in this report include estimates of sampling error expressed as 1.96 standard errors around (plus or minus) the estimate. As such, the estimates express the “95% confidence interval,” or the interval that defines where the parameter would fall (with 95% probability) if all households in Utah were interviewed. In other words, there is only a 5% chance that the actual population parameter, or value, would fall outside the confidence interval. Figures in this report include bars showing this estimated variation around the parameter estimate. Readers should note that we have always presented the confidence interval as though it were symmetric, that is, of equal value both above and below (plus and minus) the estimate. It is often the case, however, that a confidence interval will be nonsymmetric. This occurs when the distribution is positively or negatively skewed, such as when a percentage is close to 0% or 100%. However, because the software program we use provides only symmetric confidence intervals, we are unable to provide the asymmetric estimates.

Non-sampling error also exists in survey estimates. Sources of non-sampling error include idiosyncratic interpretation of survey questions by respondents, variations in interviewer technique, household non-response to questions, coding errors, and so forth. No specific efforts were made to quantify the magnitude of non-sampling error.

Comparability with other surveys is an issue with all surveys. Differences in survey design, survey questions, estimation procedures, the socio-demographic and economic context, and changes in the structure and financing of the health care delivery system may all affect comparison between the 1996 Utah Health Status Survey and other surveys, including those conducted by the U.S. Bureau of the Census, the Behavioral Risk Factor Surveillance System surveys, and previous Utah Department of Health, Health Status Surveys.

Telephone surveys exclude certain population segments from the sampling frame, including persons in group living quarters (e.g., military barracks, nursing homes) and households without telephones. At the time of the 1990 Decennial Census, only four percent of Utah households were without telephone service. Typically, telephone surveys are biased because telephone households under-represent lower income and certain minority populations. In addition, studies have shown that non-telephone households tend to have lower rates of health care utilization (especially dental care), poorer health habits and health status, and lower rates of health insurance coverage (Thornberry and Massey, 1988).

Despite these overall disparities between telephone and non-telephone households, new survey research (Keeter, 1995) suggests that a similarity exists between data from non-telephone households and telephone households that experienced an interruption in service over the past 12 months. This similarity exists because many, if not most, households currently without telephones did have service in the recent past, and will have service again in the future. Therefore, certain households with telephones (those that had a recent interruption in service) are representative of “nonphone” households, allowing health status survey estimates that have been corrected for telephone noncoverage bias to be produced where indicated.

Analysis of the SF-12 Scale

Introduction

The purpose of this section is to provide a more thorough treatment of the methodology that was used to compute the SF-12 scales and difference scores used in this report. Readers interested in using the SF-12 items should register their intent with the Medical Outcomes Study group, and may be interested in obtaining technical and scoring manuals directly from them at the following address: The Health Institute, New England Medical Center Hospitals, Inc. Box 345, 750 Washington Street, Boston, MA 02111 (Ware et al., 1994, 1995).

This section is intended to provide only additional information that pertains specifically to the Utah administration of the SF-12 in the context of the Utah Health Status Survey. General information on the administration of the 1996 Utah Health Status Survey may be found in the section entitled General Technical Background to the 1996 Health Status Survey.

Brief Background of the SF-12

The SF-12 is a self-report measure of a person's perceived health on a number of dimensions (e.g., general health status, pain, depression, etc.). It was designed to measure patient outcomes in medical practice and clinical research for a variety of purposes, such as to monitor transitions in health status over time for diverse groups, to measure the burden of populations suffering from chronic medical and psychiatric conditions compared to well populations, to evaluate the relative benefits of different treatments, and to compare health outcomes across different health care delivery systems (McHorney et al., 1993, 1994). The Medical Outcomes Study group developed the SF-12 with the following objectives in mind 1) to serve as a measure of overall health status that took the patient's perspective into account, 2) to meet the need for a standardized health status measurement tool that was comprehensive, psychometrically sound, and brief (Ware & Sherbourne, 1992).

The SF-12 is the most recent in a series of health status measures developed by the Medical Outcomes Study group. Early on there were 18-item and 20-item measures. More recently, a 36-item short-form health status scale (SF-36) has replaced the earlier versions. The SF-36 can be scored to yield two overall measures: Physical health and mental health summary measures. Each measure is composed of eight subscales, representing eight different dimensions of physical and mental health:

- Physical functioning,
- Role functioning (physical),
- Bodily pain,
- General health,
- Vitality,
- Social functioning,
- Role functioning (emotional), and
- Mental health.

All eight subscales (and, hence, all 36 items) are used to form both the physical and mental health summary measures. The first four dimensions are weighted more heavily in the construction of the physical health summary score, while the second four dimensions are weighted more heavily in construction of the mental health summary score. The SF-36 can discriminate relatively well between persons with minor medical conditions, serious physical conditions, psychiatric conditions, and those with both serious physical and psychiatric conditions (McHorney, et al., 1993).

The SF-12 is not intended to replace the SF-36. Rather, a subset of 12 items was selected from the SF-36 because 36 items are often too many to include on a questionnaire (as was our experience with the Utah Health Status Survey). The 12-item subset explains over 90% of the statistical variance in the original 36-item physical and mental health summary scale measures, it can be scored so that it reproduces the average scores for the summary measures with a high degree of comparability, and it can be printed on one to two pages of a self-administered questionnaire or administered by an interviewer in less than two minutes, on average (Ware, Kosinski, & Keller, 1996).

Data Collection

The Utah Health Status Survey interview began with a set of questions on the general characteristics (e.g., age, height, weight, race) of each household member. One SF-12 item, (GH1, “In general, would you say your/[name’s] health is poor, fair, good, very good, or excellent?”) was positioned near the beginning of this series of items, and was asked with respect to each household member. The remaining SF-12 questions were administered immediately following the general demographic questions to avoid the context effects that other material in the survey (e.g., questions about chronic conditions and doctor visits) might have upon responses to the SF-12 questions. Aside from the general health item, the SF-12 questions were administered only to the survey respondents. The respondent was not asked to provide information on other persons in the household because it was believed that he or she could not provide accurate proxy data regarding the subjective states of other persons in the household. As a result, the SF-12 results reported here were derived from the responses of the 6,131 randomly-selected adult respondents, and are representative of persons age 18 and over in Utah.

Data Analysis

Initial Scoring. The SF-12 items were scored according to the procedure provided in Ware, et al. (1995). Initially, the 12 items are “dummy-coded” and weighted according to the SF-12 scoring manual. (Dummy-coding is a process that creates one variable for each item response. It is used to analyze ordinal-level data with parametric statistical techniques, such as linear regression.) This process was used to compute the Physical Health Composite Score and the Mental Health Composite Score summary measures of the SF-12. (A detailed description of this process may be obtained from the Bureau of Surveillance and Analysis, Utah Department of Health.)

The weighting algorithm was designed so that the SF-12 scores are consistent with the SF-36 scores, that is, each has a national mean of 50 and standard deviation of 10. Higher scores in both physical and mental health measures indicate better health. Scores higher than the mean indicate

that a person has better health status than average, while scores lower than the mean indicate poorer health status than average.

In Utah, as in national samples of the general population, the distribution was quite negatively skewed, with a range of approximately 10 to 70. Given this distribution of scores, persons with poor health outcomes could score much lower than the mean, as many as 40 points lower, but persons with excellent health outcomes could score only as many as 20 points above the mean.

Age-Specific Difference Scores. The physical and mental health summary measures differ by age group, with older persons experiencing worse physical health, but better mental health outcomes than their younger counterparts.

Summary Measure Scores by Age Group

Age Group	Physical Health	Mental Health
18-34	51.93	52.21
35-44	51.42	52.35
45-54	50.53	53.64
55-64	47.67	54.69
65-74	44.59	56.50
75+	42.71	55.03

Because of this pattern of responding, the Medical Outcomes Study group recommends that a person's score be interpreted in the context of his or her own age group. Because we wanted to compare across various population groups while controlling for the effects of age, we wanted to form a single score that would take into account age differences in responding.

We had also heard from local users of the SF-36 and SF-12 that the scales were not intuitive. According to psychometric scaling theory, a scale is a much more powerful measurement tool than a single item. Single items are prone to error, such as differences in interpretation by respondents. A scale is also advantageous because it can measure more of the richness of a phenomenon, such as measuring all eight dimensions of health status, ensuring that the full range of experiences is represented in the data. However, scales also have a disadvantage: They are often less intuitive than a single item. For instance, the general health item of the SF-12 elicits a person's health status as either excellent, very good, good, fair, or poor. It is easy to imagine what is meant by excellent health versus poor health. One can not look at a person's SF-12 score and know what it means. One user reported, "So I learn that a person has a score of 42.5. What does that tell me?"

Age-specific difference scores were derived in response to both the need for a single score that controlled for the effects of age, and the need for a scale that is more intuitive. The age-specific difference score is the difference between a person's score and his or her age-specific reference group. Thus, if a person has a difference score of -5.5, it indicates that they scored 5.5 points lower than other persons their age—an indication of somewhat poor health. The difference score

is perhaps the most intuitive way to judge a person's score. Looking at a difference score, it is immediately clear whether a person is more healthy or less healthy than other persons in their comparison group. In addition, difference scores can be compared across age groups. That is, a score of -5.5 means virtually the same thing, regardless of a person's age.

Developing Cut-Points for Above- and Below-Average Scores. After computing age-specific difference scores, the SF-12 scales were more intuitive than they had originally been. Positive scores indicated good health, whereas negative scores indicated poor health. But there was still a question of how low a person's score had to be in order for him or her to be considered in poor health. The difference score indicated the direction and magnitude of the score, but it did not indicate at which point a negative score should elicit concern.

The standard error of measurement is used to assign these cut-off points to individual scores. The SEM is a psychometric property of the scale that indicates the extent to which an individual's score should be expected to vary over a large number of randomly parallel tests (given that his or her health has not changed) (Kosinsky, 1997; Ware, Bayliss, Rogers, Kosinski & Tarlov, 1996; Nunnally, 1978). It is computed as follows:

$$\text{SEM} = \text{std. dev.} * (\text{sqrt}(1 - \text{reliability coefficient}))$$

The unweighted sample data were used to compute the reliability coefficient (also known as Cronbach's alpha). Weighting the survey sample was deemed unnecessary for this step because the reliability coefficient is a property of the scale that is based on the intercorrelation of items — we were not producing an estimate of a population parameter that would be generalized to the state population. In practice, weighting the data made very little difference in the value of the reliability coefficient (unweighted = .868, weighted = .853). The same reliability coefficient was used to compute the SEM for both physical and mental health summary measures because all 12 items are used in the computation of both scales.

Weighted sample data were used to calculate the standard deviations for the two scales. SUDAAN (a statistical package that uses Taylor series expansion to derive unbiased estimates of sampling variation) was not used to calculate the standard deviation. It was deemed unnecessary, since an estimate of the population parameter, standard deviation, was desired rather than an estimate of the sampling variation of the mean scale score (Williams, 1997). Standard deviations for the two scales were 9.16 and 8.56 for the physical and mental health summary scales, respectively.

The standard errors of measurement for the physical and mental health scales were multiplied by 1.96 to derive the 95% confidence interval, the theoretical range within which an individual's score would vary over 95% of a large number of repeated observations with parallel forms of the same test. Conceptually, this confidence interval should be applied to each individual's score to ascertain whether the individual's confidence interval includes the mean scale score. If their confidence interval includes the average score, then they should be considered “no different from average.” In practice, however, the confidence interval may also be applied to the mean scale score to define a range, within which an individual score could be considered average. The 95% confidence intervals for the physical and mental health summary scores were 6.53 and 6.11, respectively.

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