

# Health Status of the Population of Guam: An Analytical Discussion of Selected Life Style Patterns

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A Collaborative Project between Community Development Institute, Cooperative Extension Service and  
Guam Health Planning and Development Agency

Community Development Institute, College of Agriculture and Life Sciences  
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HEALTH STATUS OF THE POPULATION OF GUAM:

AN ANALYTICAL DISCUSSION OF SELECTED  
LIFE-STYLE PATTERNS

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## SECTION ONE

### HEALTH BEHAVIOR PATTERNS: A DEMOGRAPHIC OVERVIEW

#### 1.1 Survey Origin and Goal

The Islandwide Health Behavior Patterns Survey originated following acceptance by the Guam Health Planning and Development Agency (GHPDA) of an application prepared by the Community Development Institute (CDI), College of Agriculture and Life Sciences (CALS) and submitted by the University of Guam (UOG). An Interagency Agreement was affirmed in late September 1983.

The Agreement called for an islandwide survey to determine the health behavior patterns of the civilian population of Guam. In 1980 CDI completed a Health Needs Assessment of the northern part of the island (1). The study concentrated on 400 families in the village districts of Yigo, Dededo and Tamuning. At that time discussions by the Guam Health Coordinating Council centered on the need for a similar health assessment of the entire island population. The findings from such a study could provide relatively current information for reviewing and, as necessary, revising the Guam Health Plan. Before this, selected health data had been obtained from an islandwide CDI survey of households having at least one child in the 18 to 36 months age range (2). The purpose of the Department of Public Health and Social Services (DPHSS) sponsored study was to establish immunization levels for children under 10 years of age. The analysis involved 2,727 children from 1,237 households.

This report is the fifth publication of findings from the Islandwide Health Behavior Patterns Survey. As such, it is the culmination of nearly one and one-half years of research effort extending from the time of this survey project application on through the joint design and development of the data collection instrument, the interviewing and data analysis processes to the writing and actual publication.

This publication represents one of five volumes intended as a means of feedback to GHPDA following the initial general analysis of survey findings. The focus of this volume is on selected lifestyle patterns associated with physical and mental health and personal safety.

#### 1.2 Sponsorship and Coordination

The islandwide health behavior study was made possible through the coordination and collaborative efforts of several significant groups. The administration and professional staff of the Guam Health Planning and Development Agency along with the Community Development Institute team jointly met during the initial phase of the project. Regular work sessions were held until such time that the design and development of the data collection instrument was completed. Intermittent written reports were submitted and small group meetings concerning the progress and status of the study were held involving GHPDA and CDI. Some changes in key personnel occurred during the study, and at times others were off-island. However, replacement personnel were not unfamiliar with GHPDA/CDI and/or the health status survey. As a result, therefore, work on this health



status study progressed, although we were not able to move ahead as rapidly as originally planned.

Due to limited funding from GHPDA and the nature and scope of the study, the project was also of interest to the Cooperative Extension Service (CES) at the University of Guam. To this end, CES provided Smith-Lever Act direct funding and professional personnel, thus joining the GHPDA in implementing the islandwide health behavior study. By combining resources of both GHPDA and CES a more comprehensive study was made possible.

The University of Guam Computer Center also played a very significant role in the project. Due to the extreme volume of survey data produced, major adjustments to operating schedules of the Computer Center staff (as well as intensive and extensive work sessions) were required to develop a means whereby the massive data set of approximately 36,632 record lines could be entered and analyzed. The large amount of information was generated as a result of treating every individual in the household as a research subject--in contrast to using only the head of the household. In effect, this design generated at least five times as much additional information. This in turn resulted in complicated situations that were not anticipated during the formation of the study.

### 1.3 Method and Procedure

A general overview of the method and procedure of this islandwide health survey follows. A more detailed explanation of the sample design and sample unit is included in Appendix B.

### 1.3.1 Sample

The health behavior study sample was drawn so that all 19 village districts would be proportionately represented in accordance with the civilian population totals reported within the 1980 Federal Census of Guam (3). The proportionate representation took into account the more densely populated census designated places (CDP's) as well as the lesser populated outlying parts of the village districts. Houses located on land currently held by the federal government were not sampled. In addition, those places that provide quarters for the institutionalized were not included in the population of housing units. Therefore, the 400 households selected for this study involved a geographically stratified two-step proportionate systematic random sampling procedure. The 400 sample units represented a ratio of one-in-fifty-nine or 1.7% of the 23,549 households available. A sample of this magnitude was determined to be of sufficient size to enable generalizing to the total civilian population. Aerial photography maps were utilized to locate housing units for drawing the sample as well as for location guides by the CDI interviewers. Because multiple residential units such as the Alupang Cove complex appeared as one building on aerial maps, families residing in condominium/apartment units were underrepresented in the study. Single houses in those same village districts tended to be somewhat overrepresented. The bias, if any, that this sampling discrepancy may have contributed to the overall study was limited only to the extent families in those two types of dwelling differed.

All the apartments within a major housing complex were counted as individual households during the 1980 Federal Census for determining the total number of household units within the village. Therefore, for a village district such as Tamuning, single-dwelling residential homes were proportionately overrepresented in the study to the extent that multiple apartment units and condominiums were undersampled. This sampling concern was recognized and discussed in advance of the study by the GHPDA/CDI project planning team but was not considered to be of such a nature as to require altering or redesigning of the sample design for the study.

#### 1.3.2 Survey Instrument

The GHPDA/CDI health study project team developed the personal interview schedule during a series of intensive work sessions which often involved extensive discussions of particular items to be included. Generally, questions were included that paralleled a prior national health study while keeping in mind the specific health questions and concerns of GHPDA.

As usual, questions were dropped, redesigned or rewritten following several field pre-tests. A copy of the survey instrument used in the study is included in the appendices.

#### 1.3.3 Data Collection and Analysis

Interviewers having prior successful field interviewing experience with CDI were called upon to do the bulk of the data gathering for this Islandwide Health Behavior Patterns Survey. Those who were new to this type of work were given very intensive training.

A problem was encountered during the field work phase when a new public law concerning dual employment was enforced. In particular, public school teachers and clerical personnel were unable to be hired as interviewers even though the survey work was to be done during late afternoon, early evening or weekend hours.

The majority of the 400 interviews were completed from late February to early May of 1984. The greatest difficulties encountered were locating the designated sample households, (especially in the less populated areas away from the village centers) and interviewer fatigue. With few exceptions most individuals found it very difficult to continue field interview work beyond 10 to 20 completed interviews. This held true even with an incentive-based pay rate that increased after every n<sup>th</sup> interview successfully completed. A total of 18 interviewers were utilized. Women in the 35 to 50 age range seemed to be more productive interviewers. Their ethnicity did not appear to be a factor related to successful work.

Generally, excellent cooperation was received from the interviewees, and little difficulty in the gathering of the field data was experienced. The extremely low rate of non-responses to personal questions such as income earned tends to support this claim.

In order to ensure the validity of information received, follow-up contacts were made by the CDI team with subjects who had been interviewed. Approximately 10.0% of all interviewees were contacted to determine the accuracy of the information

obtained during the interviews. In addition, this follow-up strategy provided an excellent check on the manner in which the interviewers had presented themselves and, in general, if they had been professional in their assignment.

Because of the volume of data generated in this study several additional computer science students at the university were employed to assist with the coding and data entry which was begun and continued simultaneously with the field interview process. As previously noted, the 1,928 subjects from the 400 households were treated as individual sample cases when coding interview information for analysis by the university mainframe computer. This generated an extremely large data set of approximately 36,632 record lines. Unfortunately, the size of the data file members that can be utilized by the Interactive Computer Control Facility (ICCF) of the University's Computer Center is limited to 5,000 record lines. A more detailed discussion of this technical data analysis problem encountered and its eventual solution is included in the appendices.

Staff initially planned to use the Statistical Package for the Social Sciences (SPSS) to analyze data, but the Statistical Analysis System (SAS) was used due to uncertainty of the University's ability to maintain rental on the SPSS program. Analysis of data was still halted for about a week when the rental of the SAS program expired.

#### 1.3.4 Validity and Reliability

The findings of the health survey are believed to be both valid and reliable within acceptable limits. As noted earlier,

interviewee follow-ups were made by phone and in person with approximately 10.0% of the households. The feedback was most positive. In addition, throughout the report various findings of this study are compared with similar data from the 1980 Federal Census of Guam and other CDI studies and are used as measures of accuracy.

When considering the very adequate sample size, in addition to the above observations, it is believed that the results reported in the following chapters can be viewed as very good estimates of the true situations as they existed in the civilian population of the island at the time data were collected.\* Caution needs to be taken, however, when interpreting data on a village-by-village basis in view of the smaller number of households sampled in lesser populated village districts. Even though the sampling was proportionate to the total number of households on a village-by-village basis, the statistical chance of less accuracy obviously occurs when the raw sample size is small; for example, the village of Umatac. To help reduce that type of potential sampling error, the data in the following sections of this report have been analyzed on a geographical regional basis, also.

The possible bias of oversampling single dwelling houses and underrepresenting condominium and large apartment complex dwellings, especially in Tamuning, should also be considered when reviewing the findings. For example, if those who reside in the apartment units and condominiums are more homogeneous

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\* See Appendix B, Table 57

in regard to certain characteristics such as ethnicity, age, length of stay on the island, level of income, number per household, and so forth then those characteristics would be proportionately affected when reported for the entire village or island. Apartment dwellers on Guam have generally been younger individuals than those residing in single family homes. Therefore, the type of over/undersampling mentioned here could result in a slightly higher percentage of older individuals being included in the study.

#### 1.4 Disclaimer

One factor which is always a concern of any survey of a sample of the population is the representativeness of subjects contacted. In addition, the time frame required to complete a study--from the initial team discussions until the published report is delivered--is most always longer than anticipated. In an atmosphere of considerable dynamic change that can and does occur on an island such as Guam, information is often outdated or somewhat less relevant, in part, by changes in the social environment and system studied before the final presentation is made. The users of such information, therefore, need to interpret that information accordingly--in light of known changes that have taken place. New information utilized in this manner should be very useful for decision making and planning purposes.

Finally, the views and interpretations presented in this report are those of the writer and do not necessarily represent the view of the Guam Health Planning and Development Agency.



### 1.5 Form of Report

This report is presented in six sections, or chapters. Section One introduces the study origin and general objectives. Also discussed here is the interagency coordination which was involved, along with a summary of methodology the team employed in collecting and analyzing the survey information. A brief overview of the validity and reliability of the data is also included in the initial section of this report. Section Two presents information pertaining to physical health. More specifically, life-style aspects of smoking tobacco, drinking alcohol and eating seasoned food are discussed. The focus in Section Three pertains more to mental health. The use of medicines and drugs are analyzed as are levels of frustration. Exercise as a means of improving physical and mental health is the topic of Section Four, while personal safety is reviewed in Section Five. A brief summary of the findings is presented in Section Six which is the final section.

In an attempt to avoid duplication of material, and yet retain relevant information, considerable detailed information such as the sample design and sample unit selection procedure, the interview schedule, and flash cards are included in the appendices. For ease in preparing and reading this report, references cited also appear in the appendices along with definitions of key words and terms.

Percentage totals in the various data tables may exceed or be less than 100 by a decimal fraction of 0.1, due to mathematical rounding of numbers.

### 1.6 Acknowledgment

The CDI team would like to extend its appreciation for the outstanding support, understanding, and cooperation of all personnel from GHPDA, the CES, CALS and UOG administration, the UOG Computer Center, the work crew of faithful interviewers and dedicated data analysts. Last, but certainly not least, a heartfelt Si Yuus Maase to the clerical and office support staff for the numerous routine responsibilities performed--in particular, typing of this report.

Although too numerous to list here, appreciation and gratitude is extended to the 400 household representatives who volunteered approximately an hour of their precious time providing the basic information for the study. Obviously, without their excellent cooperation and honesty, this study would not have been possible.

## SECTION TWO

### PHYSICAL HEALTH: SMOKING, DRINKING AND EATING LIFE-STYLE PATTERNS

#### 2.1 Introduction

In an effort to gain a better understanding of the physical level of well-being of the island population, several personal life-style traits were analyzed. Interviewees were asked to respond to Questions 21-23 and 27-31 regarding the regular use of tobacco, alcohol and seasonings on foods eaten.\*

The adult respondents from the 400 randomly selected households answered the personal interview questions for themselves as well as their respective households. The data presented in this volume of the five-report series, therefore, apply to the total sample of 1,928. However, in certain instances infants and other children who were 15 years old or younger were removed from the data set to make selected findings presented in this section more meaningful.

#### 2.2 Use of Tobacco

##### 2.2.1 Number of Smokers and Personal-Social Characteristics

The subjects were asked in Question 21 if anyone in their household regularly smoked tobacco. Nearly one-fourth (23.1%) of the entire study group of 1,928 were reported as smokers. The percentage was recomputed for the 1,253 individuals who

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\*See Appendix C

were age 16 or older and found to be 35.3--over one-third of the adult population (Table 1). This procedure involved omitting four cases.

TABLE 1. Regularly Smoke Tobacco

| Smoke Tobacco | All Individuals |             | Individuals Age 16+ |             |
|---------------|-----------------|-------------|---------------------|-------------|
|               | f               | %           | f                   | %           |
| Yes           | 446             | 23.1        | 442                 | 35.3        |
| No            | <u>1,482</u>    | <u>76.9</u> | <u>811</u>          | <u>64.7</u> |
| TOTAL         | 1,928           | 100.0       | 1,253               | 100.0       |

Tables 2, 3, and 4 present analyses of the personal-social characteristics of gender, ethnicity, and age to show if an association or "correlation" between the characteristics and the use of tobacco existed. The information in the tables indicates the percent of smokers and non-smokers within a given subgroup. This differs from the presentation in Table 5 which clearly points out the relationship among the sample categories.

TABLE 2. Regularly Smoke Tobacco by Gender

| Smoke Tobacco | Gender (N=1,253) |             |            |             |
|---------------|------------------|-------------|------------|-------------|
|               | Male             |             | Female     |             |
|               | f                | %           | f          | %           |
| Yes           | 294              | 46.1        | 148        | 24.1        |
| No            | <u>344</u>       | <u>53.9</u> | <u>467</u> | <u>75.9</u> |
| TOTAL         | 638              | 100.0       | 615        | 100.0       |

TABLE 3. Regularly Smoke Tobacco by Ethnicity

| Smoke Tobacco | Ethnicity (N=1,258) |             |            |             |           |             |                 |             |           |             |            |             |
|---------------|---------------------|-------------|------------|-------------|-----------|-------------|-----------------|-------------|-----------|-------------|------------|-------------|
|               | Chamorro            |             | Filipino   |             | Caucasian |             | Other Islanders |             | Asian     |             | All Others |             |
|               | f                   | %           | f          | %           | f         | %           | f               | %           | f         | %           | f          | %           |
| Yes           | 291                 | 41.5        | 90         | 23.4        | 19        | 33.3        | 10              | 32.3        | 12        | 40.0        | 20         | 41.7        |
| No            | <u>411</u>          | <u>58.5</u> | <u>295</u> | <u>76.6</u> | <u>38</u> | <u>66.7</u> | <u>21</u>       | <u>67.7</u> | <u>18</u> | <u>60.0</u> | <u>28</u>  | <u>58.3</u> |
| TOTAL         | 702                 | 100.0       | 385        | 100.0       | 57        | 100.0       | 31              | 100.0       | 30        | 100.0       | 48         | 100.0       |

Upon reviewing Tables 2 and 5 more closely it may be observed that nearly one-half (46.1%) of the adult males smoked, while for the females the figure was slightly less than one-fourth (24.1%). Among the smokers (Table 5) the sex ratio was two males to every one female.

Filipinos were least likely to be smokers (23.4%), while one-third of the Caucasians and Other Islanders indicated that they smoked (Table 3). The Chamorros, Asians and All Others were most likely to be users of tobacco (40.0-42.0% of their ethnic groups). Not only were Chamorros among those most likely to be smokers, they also comprised two-thirds (65.8%) of all smokers (Table 5). Shown in Table 4 is the age distribution of all smokers. As may be noted, the proportion of smokers in each of the selected age categories increased from early to mid-life and then fell off in later years.

TABLE 4. Regularly Smoke Tobacco by Age (16+)

| Smoke Tobacco | Age (N=1,253) |             |            |             |           |             |           |             |
|---------------|---------------|-------------|------------|-------------|-----------|-------------|-----------|-------------|
|               | 16-39         |             | 40-54      |             | 55-64     |             | 65+       |             |
|               | f             | %           | f          | %           | f         | %           | f         | %           |
| Yes           | 244           | 34.4        | 112        | 41.2        | 60        | 38.0        | 26        | 23.0        |
| No            | <u>466</u>    | <u>65.6</u> | <u>160</u> | <u>58.8</u> | <u>98</u> | <u>62.0</u> | <u>87</u> | <u>77.0</u> |
| TOTAL         | 710           | 100.0       | 272        | 100.0       | 158       | 100.0       | 113       | 100.0       |

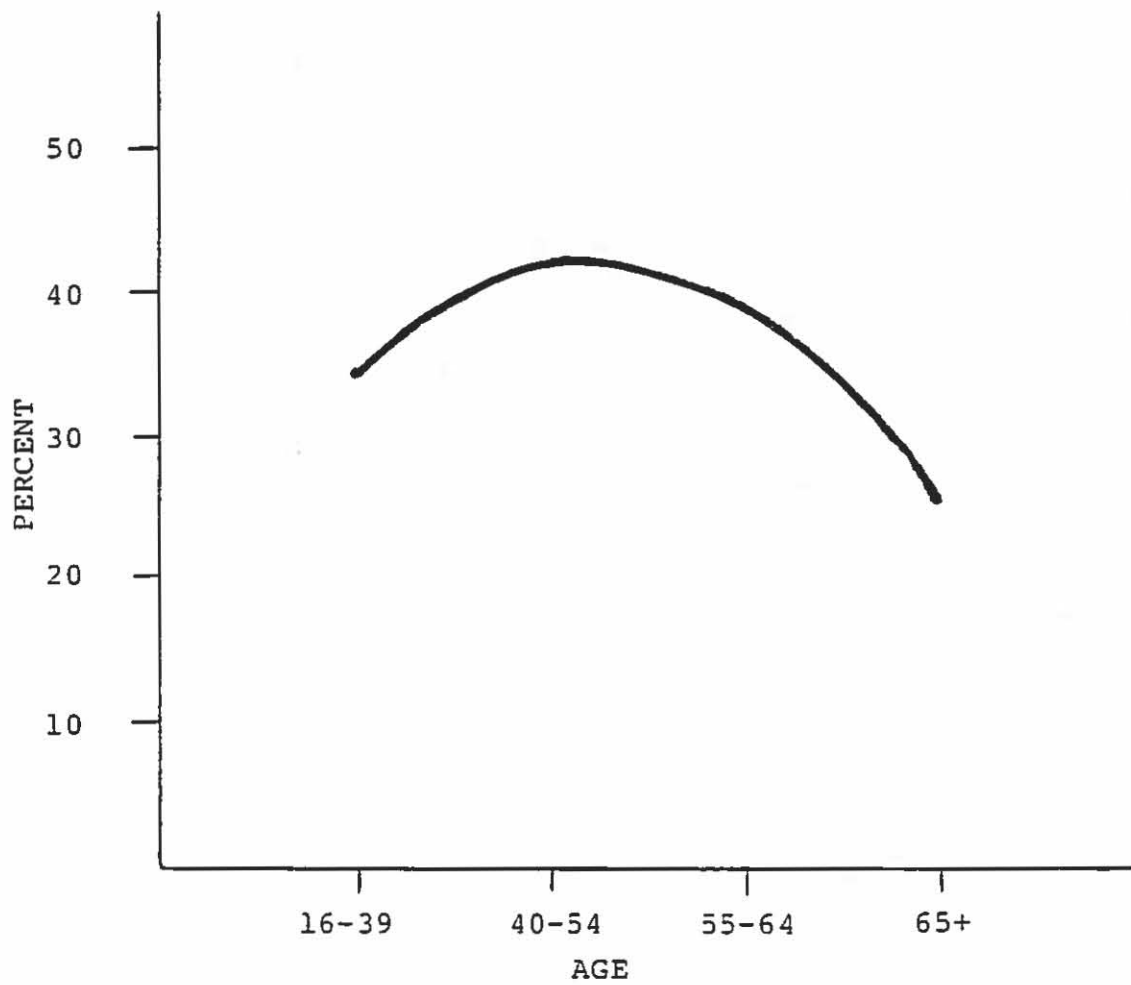
The "smoker age curve" appears in Figure 1. The final data set in Table 5 shows that more than one-half (55.2%) of

TABLE 5. Number and Percent of Tobacco Smokers by Gender, Ethnicity and Age (16+)

| Characteristics  | Individuals |             |
|------------------|-------------|-------------|
|                  | f           | %           |
| <u>Gender</u>    |             |             |
| Male             | 294         | 66.5        |
| Female           | <u>148</u>  | <u>33.5</u> |
| TOTAL            | 442         | 100.0       |
| -----            |             |             |
| <u>Echnicity</u> |             |             |
| Chamorro         | 291         | 65.8        |
| Filipino         | 90          | 20.4        |
| Caucasian        | 19          | 4.3         |
| Other Islanders  | 10          | 2.3         |
| Asians           | 12          | 2.7         |
| All Others       | <u>20</u>   | <u>4.5</u>  |
| TOTAL            | 442         | 100.0       |
| -----            |             |             |
| <u>Age</u>       |             |             |
| 16 - 39          | 244         | 55.2        |
| 40 - 54          | 112         | 25.3        |
| 55 - 64          | 60          | 13.6        |
| 65 +             | <u>26</u>   | <u>5.9</u>  |
| TOTAL            | 442         | 100.0       |



FIGURE 1. Smoker Age Curve



all smokers in this islandwide study were in the 16 to 39 age range. Another one-fourth of the tobacco users were in the late mid-life category of 40 to 54 years.

#### 2.2.2 Smoking Tenure

The number of years the 446 individuals had been smoking was also obtained. Data on regular smokers, including the four youths who were less than 16 years old, make up Table 6. Shown in Table 7 is a complete listing of the number of years individuals had smoked, along with the number of individuals and the percentage of the subgroup that they represented.

The number of years individuals had been smoking tobacco ranged from beginners to as long as 60 years. The median point was 10.4 years, while the actual arithmetic mean was computed and found to be somewhat higher--about 14.5 years.

The frequencies in the "years of smoking" variable were categorized to facilitate the review of selected personal-social characteristics (Table 8). Males were found to have been smoking an average of three years longer than females. The figures were 12.1 and 9.4 years, respectively.

With regard to the ethnic origins of this sample subgroup of smokers, the median number of years of smoking for the Filipinos (17.1) far exceeded that of any other group. The figure of 9.6 years for Chamorros was about two years less than the 11.8 years for Caucasians, but was over 6.0 years greater than for those individuals who had come to Guam from the islands of the former U. S. Trust Territory of the Pacific Islands.

FIGURE 2. Smoking Tenure Age Curve

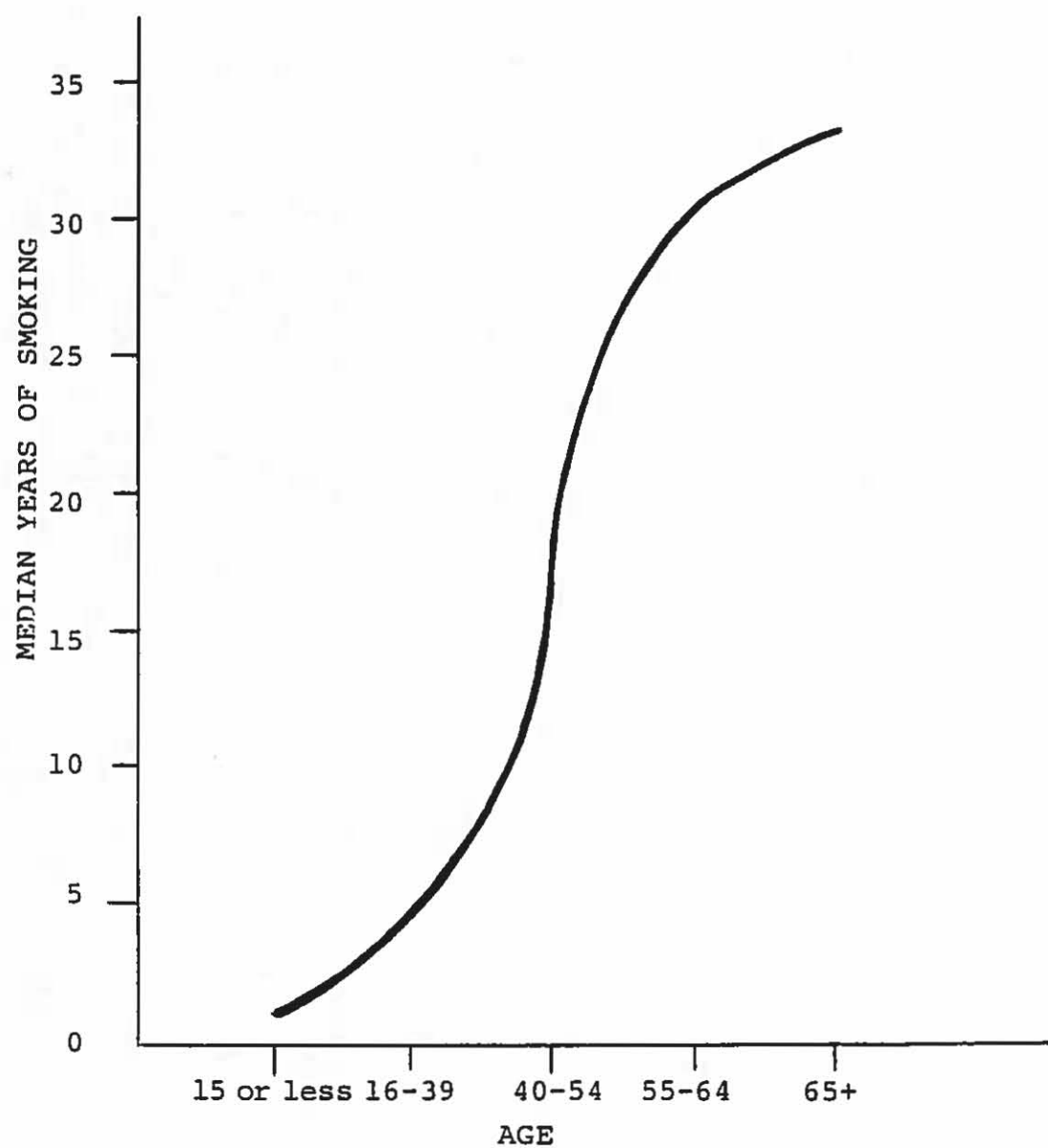


TABLE 6. Number of Years Smoked Tobacco by Age

| Year(s) of Smoking | Age        |       |       |       |       |      |       |       |      |       |
|--------------------|------------|-------|-------|-------|-------|------|-------|-------|------|-------|
|                    | 15 or Less |       | 16-39 |       | 40-54 |      | 55-64 |       | 65+  |       |
|                    | f          | %     | f     | %     | f     | %    | f     | %     | f    | %     |
| 1 or less          | 3          | 75.0  | 30    | 12.3  | 2     | 1.8  | 1     | 1.8   | -    | -     |
| 2 - 5              | 1          | 25.0  | 94    | 38.7  | 11    | 9.9  | 1     | 1.8   | 2    | 8.0   |
| 6 - 10             | -          | -     | 60    | 24.7  | 16    | 14.4 | 2     | 3.5   | 1    | 4.0   |
| 11 - 15            | -          | -     | 34    | 14.0  | 18    | 16.2 | 4     | 7.0   | 1    | 4.0   |
| 16 - 20            | -          | -     | 20    | 8.2   | 25    | 22.5 | 11    | 19.3  | 3    | 12.0  |
| 21 +               | -          | -     | 5     | 2.1   | 39    | 35.1 | 38    | 66.6  | 18   | 72.0  |
| TOTAL              | 4          | 100.0 | 243   | 100.0 | 111   | 99.9 | 57    | 100.0 | 25   | 100.0 |
| Insufficient Data  | -          |       | 1     |       | 1     |      | 3     |       | 1    |       |
| Median             | 1.2        |       | 5.4   |       | 17.2  |      | 31.0  |       | 33.2 |       |

TABLE 7. Number of Years Smoked Tobacco

| Number of Years   | Individuals      |       |              |
|-------------------|------------------|-------|--------------|
|                   | f                | %     | Cumulative % |
| Less than 1       | 5                | 1.1   | 1.1          |
| 1                 | 31               | 7.1   | 8.2          |
| 2                 | 31               | 7.1   | 15.3         |
| 3                 | 25               | 5.7   | 21.0         |
| 4                 | 19               | 4.3   | 25.3         |
| 5                 | 34               | 7.7   | 33.0         |
| 6                 | 8                | 1.8   | 34.8         |
| 7                 | 6                | 1.4   | 36.2         |
| 8                 | 15               | 3.4   | 39.6         |
| 9                 | 7                | 1.6   | 41.2         |
| 10                | 43               | 9.8   | 51.0         |
| 11                | 5                | 1.1   | 52.1         |
| 12                | 17               | 3.9   | 56.0         |
| 13                | 6                | 1.4   | 57.4         |
| 14                | 8                | 1.8   | 59.2         |
| 15                | 21               | 4.8   | 64.0         |
| 16                | 4                | 0.9   | 64.9         |
| 17                | 1                | 0.2   | 65.1         |
| 18                | 6                | 1.4   | 66.5         |
| 20                | 48               | 10.9  | 77.4         |
| 21                | 1                | 0.2   | 77.6         |
| 22                | 4                | 0.9   | 78.5         |
| 23                | 2                | 0.5   | 79.0         |
| 24                | 2                | 0.5   | 79.5         |
| 25                | 11               | 2.5   | 82.0         |
| 26                | 3                | 0.7   | 82.7         |
| 27                | 1                | 0.2   | 82.9         |
| 28                | 3                | 0.7   | 83.6         |
| 30                | 18               | 4.1   | 87.7         |
| 31                | 1                | 0.2   | 87.9         |
| 32                | 3                | 0.7   | 88.7         |
| 33                | 3                | 0.7   | 89.3         |
| 34                | 3                | 0.7   | 90.0         |
| 35                | 3                | 0.7   | 90.7         |
| 36                | 2                | 0.5   | 91.2         |
| 37                | 3                | 0.7   | 91.9         |
| 38                | 2                | 0.5   | 92.4         |
| 39                | 1                | 0.2   | 92.6         |
| 40                | 12               | 2.6   | 95.2         |
| 41                | 1                | 0.2   | 95.4         |
| 42                | 1                | 0.2   | 95.6         |
| 43                | 1                | 0.2   | 95.8         |
| 44                | 3                | 0.7   | 96.5         |
| 45                | 4                | 0.9   | 97.4         |
| 46                | 1                | 0.2   | 97.6         |
| 50                | 4                | 0.9   | 98.5         |
| 51                | 1                | 0.2   | 98.7         |
| 52                | 1                | 0.2   | 98.9         |
| 54                | 1                | 0.2   | 99.1         |
| 57                | 2                | 0.5   | 99.6         |
| 59                | 1                | 0.2   | 99.8         |
| 60                | 1                | 0.2   | 100.0        |
| TOTAL             | 440              | 100.0 |              |
| Insufficient Data | 6                |       |              |
| Median            | 10.4             |       |              |
| Mean              | 14.6             |       |              |
| Range             | Less than 1 - 60 |       |              |

TABLE 8. Number of Years Smoked Tobacco by Gender

| Years of Smoking  | Gender    |             |           |             |
|-------------------|-----------|-------------|-----------|-------------|
|                   | Male      |             | Female    |             |
|                   | f         | %           | f         | %           |
| 1 or less         | 22        | 7.5         | 14        | 9.5         |
| 2 - 5             | 73        | 25.0        | 36        | 24.3        |
| 6 - 10            | 43        | 14.7        | 36        | 24.3        |
| 11 - 15           | 36        | 12.3        | 21        | 14.2        |
| 16 - 20           | 45        | 15.4        | 14        | 9.5         |
| 21 +              | <u>73</u> | <u>25.0</u> | <u>27</u> | <u>18.2</u> |
| TOTAL             | 292       | 99.9        | 148       | 100.0       |
| Insufficient Data | 5         |             | 1         |             |
| Median            | 12.1      |             | 9.4       |             |

As would be expected, there was a strong positive correlation between age and the average number of years the tobacco users had been smoking (Table 6). The relationship between the two variables is graphically presented in Figure 2 and labeled the smoking tenure age curve.

#### 2.2.3 What Was Smoked

Nearly all of the 446 tobacco smokers (95.5%) in this islandwide study were reported to smoke filtered cigarettes. In addition, 2.7% smoked cigarettes that were unfiltered. Of the remaining individuals, 1.1% used cigars and 0.5% indicated that they were pipe smokers (Table 10).

TABLE 9. Number of Years Smoked Tobacco by Ethnicity

| Years of Smoking  | Ethnicity |             |           |             |           |             |                 |          |          |            |            |             |
|-------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------------|----------|----------|------------|------------|-------------|
|                   | Chamorro  |             | Filipino  |             | Caucasian |             | Other Islanders |          | Asians   |            | All Others |             |
|                   | f         | %           | f         | %           | f         | %           | f               | %        | f        | %          | f          | %           |
| 1 or Less         | 27        | 9.3         | 2         | 2.3         | 1         | 5.3         | 3               | 30.0     | -        | -          | 3          | 15.0        |
| 2 - 5             | 83        | 28.5        | 12        | 13.6        | 2         | 10.5        | 4               | 40.0     | 1        | 8.3        | 7          | 35.0        |
| 6 - 10            | 50        | 17.2        | 14        | 15.9        | 6         | 31.6        | -               | -        | 6        | 50.0       | 3          | 15.0        |
| 11 - 15           | 37        | 12.7        | 12        | 13.6        | 3         | 15.8        | 2               | 20.0     | 1        | 8.3        | 2          | 10.0        |
| 16 - 20           | 30        | 10.3        | 19        | 21.6        | 3         | 15.8        | 1               | 10.0     | 3        | 25.0       | 3          | 15.0        |
| 21 +              | <u>64</u> | <u>22.0</u> | <u>29</u> | <u>33.0</u> | <u>4</u>  | <u>21.0</u> | <u>-</u>        | <u>-</u> | <u>1</u> | <u>8.3</u> | <u>2</u>   | <u>10.0</u> |
| TOTAL             | 291       | 100.0       | 88        | 100.0       | 19        | 100.0       | 10              | 100.0    | 12       | 99.9       | 20         | 100.0       |
| Insufficient Data | 3         |             | 3         |             | -         |             | -               |          | -        |            | -          |             |
| Median            | 9.5       |             | 17.1      |             | 11.8      |             | 3.5             |          | 10.2     |            | 5.9        |             |

TABLE 10. What Was Smoked

| What Smoked            | <u>Individuals</u> |            |
|------------------------|--------------------|------------|
|                        | <u>f</u>           | <u>%</u>   |
| Cigarettes, filtered   | 426                | 95.5       |
| Cigarettes, unfiltered | 12                 | 2.7        |
| Cigars                 | 5                  | 1.1        |
| Pipes                  | 2                  | 0.5        |
| Other                  | <u>1</u>           | <u>0.2</u> |
| TOTAL                  | 446                | 100.0      |

#### 2.2.4 Amount Smoked

The number of cigarettes smoked in a typical day ranged from 1 to 80 (equivalent to 4 packs of 20 cigarettes each). The average number consumed daily was slightly over a pack--about 23 cigarettes (Table 11).

There was little difference noted between the average number of cigarettes smoked by males and the number smoked by females. The median figures were 23.6 and 21.5, respectively. Therefore, although fewer females than males smoked, those who did smoked at about the same rate as their counterparts (Table 12).

There was very little variation noted among the various ethnic groups on the island and the number of cigarettes they generally smoked in a day. The low group average for the Filipinos and Caucasians was 21.7; the Asians' was 24.0 (Table 13).



TABLE 11. Average Number of Cigarettes Smoked Per Day

| Number of Cigarettes | Individuals |       |        |
|----------------------|-------------|-------|--------|
|                      | f           | %     | cum. % |
| 1                    | 2           | 0.4   | 0.4    |
| 2                    | 7           | 1.6   | 2.0    |
| 3                    | 15          | 3.4   | 5.4    |
| 4                    | 3           | 0.7   | 6.1    |
| 5                    | 11          | 2.5   | 8.6    |
| 6                    | 3           | 0.7   | 9.3    |
| 7                    | 7           | 1.6   | 10.9   |
| 8                    | 6           | 1.4   | 12.3   |
| 10                   | 97          | 22.3  | 34.6   |
| 14                   | 1           | 0.2   | 34.8   |
| 15                   | 11          | 2.5   | 37.3   |
| 18                   | 2           | 0.4   | 37.7   |
| 20                   | 183         | 42.0  | 79.7   |
| 30                   | 34          | 7.8   | 87.5   |
| 40                   | 41          | 9.4   | 96.9   |
| 48                   | 1           | 0.2   | 97.1   |
| 50                   | 2           | 0.4   | 97.5   |
| 60                   | 9           | 2.1   | 99.6   |
| 80                   | 2           | 0.4   | 100.0  |
| <hr/>                |             |       |        |
| TOTAL                | 437         | 100.0 |        |
| <hr/>                |             |       |        |
| Insufficient Data    | 1           |       |        |
| Median               | 22.9        |       |        |
| Range                | 1-80        |       |        |

TABLE 12. Average Number of Cigarettes Smoked Per Day by Gender

| Number of<br>Cigarettes | Gender |       |         |       | Total |       |
|-------------------------|--------|-------|---------|-------|-------|-------|
|                         | Males  |       | Females |       |       |       |
|                         | f      | %     | f       | %     | f     | %     |
| 1 - 5                   | 21     | 7.2   | 17      | 11.6  | 38    | 8.7   |
| 6 - 10                  | 69     | 23.7  | 44      | 30.1  | 113   | 25.8  |
| 11 - 20                 | 135    | 46.4  | 62      | 42.5  | 197   | 45.1  |
| 21 - 30                 | 20     | 6.9   | 14      | 9.6   | 34    | 7.8   |
| 31 - 40                 | 35     | 12.0  | 6       | 4.1   | 41    | 9.4   |
| 41 - 80                 | 11     | 3.8   | 3       | 2.1   | 14    | 3.2   |
| TOTAL                   | 291    | 100.0 | 146     | 100.0 | 437   | 100.0 |
| -----                   |        |       |         |       |       |       |
| Insufficient Data       | 1      |       | -       |       | 1     |       |
| Median                  | 23.6   |       | 21.5    |       |       |       |
| Range                   | 1-80   |       | 2-60    |       |       |       |

TABLE 13. Average Number of Cigarettes Smoked Per Day by Ethnicity

| Number of<br>Cigarettes | Ethnicity |            |          |            |           |             |                    |          |          |          |            |          |
|-------------------------|-----------|------------|----------|------------|-----------|-------------|--------------------|----------|----------|----------|------------|----------|
|                         | Chamorro  |            | Filipino |            | Caucasian |             | Other<br>Islanders |          | Asians   |          | All Others |          |
|                         | f         | %          | f        | %          | f         | %           | f                  | %        | f        | %        | f          | %        |
| 1 - 5                   | 21        | 7.2        | 13       | 14.8       | 1         | 5.6         | 1                  | 10.0     | -        | -        | 2          | 10.0     |
| 6 - 10                  | 78        | 27.0       | 23       | 26.1       | 4         | 22.2        | 3                  | 30.0     | 3        | 25.0     | 2          | 10.0     |
| 11 - 20                 | 130       | 45.0       | 38       | 43.2       | 6         | 33.3        | 4                  | 40.0     | 6        | 50.0     | 13         | 65.0     |
| 21 - 30                 | 25        | 8.7        | 4        | 4.5        | 2         | 11.1        | 1                  | 10.0     | 1        | 8.3      | 1          | 5.0      |
| 31 - 40                 | 27        | 9.3        | 7        | 8.0        | 2         | 11.1        | 1                  | 10.0     | 2        | 16.7     | 2          | 10.0     |
| 41 - 90                 | <u>8</u>  | <u>2.8</u> | <u>3</u> | <u>3.4</u> | <u>3</u>  | <u>16.7</u> | <u>-</u>           | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u>   | <u>-</u> |
| TOTAL                   | 289       | 100.0      | 88       | 100.0      | 18        | 99.9        | 10                 | 100.0    | 12       | 100.0    | 20         | 100.0    |
| Insufficient Data       | 1         |            | -        |            | -         |             | -                  |          | -        |          | -          |          |
| Median                  | 22.8      |            | 21.7     |            | 21.7      |             | 22.5               |          | 24.0     |          | 23.6       |          |
| Range                   | 2-80      |            | 1-80     |            | 5-60      |             | 5-40               |          | 10-40    |          | 3-40       |          |

TABEL 14. Average Number of Cigarettes Smoked Per Day by Age

| Number of Cigarettes | Age        |       |       |      |       |       |       |       |      |      |
|----------------------|------------|-------|-------|------|-------|-------|-------|-------|------|------|
|                      | 15 or Less |       | 16-39 |      | 40-54 |       | 55-64 |       | 65+  |      |
|                      | f          | %     | f     | %    | f     | %     | f     | %     | f    | %    |
| 5 or Less            | -          | -     | 17    | 7.0  | 8     | 7.1   | 5     | 8.9   | 8    | 34.8 |
| 6 - 10               | -          | -     | 64    | 26.4 | 29    | 25.9  | 15    | 26.8  | 5    | 21.7 |
| 11 - 20              | 4          | 100.0 | 115   | 47.5 | 48    | 42.9  | 22    | 39.3  | 8    | 34.8 |
| 21 - 30              | -          | -     | 18    | 7.4  | 8     | 7.1   | 7     | 12.5  | 1    | 4.3  |
| 31 - 40              | -          | -     | 21    | 8.7  | 12    | 10.7  | 7     | 12.5  | 1    | 4.3  |
| 41 - 80              | -          | -     | 7     | 2.9  | 7     | 6.3   | -     | -     | -    | -    |
| TOTAL                | 4          | 100.0 | 242   | 99.9 | 112   | 100.0 | 56    | 100.0 | 23   | 99.9 |
| Insufficient Data    | -          |       | 1     |      | -     |       | -     |       | -    |      |
| Median               | 20.0       |       | 23.0  |      | 23.4  |       | 23.0  |       | 12.8 |      |
| Range                | -20-       |       | 2-80  |      | 1-80  |       | 3-40  |       | 1-40 |      |

Age (except for the oldest of the senior citizens in our sample) did not seem to have any significant affect on the average amount of cigarettes smoked in a day. The number of cigarettes smoked daily by those 65 and older was approximately 13 cigarettes or about one-half pack less than the overall sample's daily average (Table 14).

#### 2.2.5 Advised to Stop Smoking

The smokers were asked if they had been advised by a medical doctor to stop or break their smoking habit. Slightly over 29.0% (about 3 out of every 10) concurred that their physician had, indeed, suggested that they give up their cigarettes (Table 15).

TABLE 15. Advised by Doctor to Stop Smoking

| Response          | Individuals |       |
|-------------------|-------------|-------|
|                   | f           | %     |
| Yes               | 129         | 29.1  |
| No                | 315         | 70.9  |
| TOTAL             | 444         | 100.0 |
| Insufficient Data | 2           |       |

#### 2.3 Use of Alcohol and Personal-Social Characteristics

Question 23 and its several subparts were used to determine life-style drinking patterns of the 400 respondents and the other members of their households. Questions were asked about the type of alcoholic beverage they usually drank (beer, wine or mixed drinks), drinking occurrence, and whether or not they had been advised to stop drinking. Regarding personal

safety and that of others, they were asked a question about the practice of drinking and driving.

### 2.3.1 Number of Drinkers

None of the children or other youth under age 16 were reported to drink on a usual basis. Therefore, the analysis of the data on drinking alcohol was limited to the 1,253 individuals who were 16 or older. Of this "adult" group 308, or one-fourth, said that they usually drank beer, wine or "hard" alcohol or mixed drinks (Table 16). "Usually drink" was defined as having at least one drink per month.

TABLE 16. Usually Drink Alcoholic Beverages

| Usually Drink | <u>All Individuals</u> |             | <u>Individuals Age 16+</u> |             |
|---------------|------------------------|-------------|----------------------------|-------------|
|               | f                      | %           | f                          | %           |
| Yes           | 308                    | 16.0        | 308                        | 24.6        |
| No            | <u>1,620</u>           | <u>84.0</u> | <u>945</u>                 | <u>75.4</u> |
| TOTAL         | 1,928                  | 100.0       | 1,253                      | 100.0       |

Extreme differences in drinking life-style existed between males and females throughout the island (Tables 17 and 18). Four out of every ten males admitted that they usually drank, while the ratio was less than one in ten (8.9%), for females.

TABLE 17. Usually Drink Alcoholic Beverages by Gender

| Usually Drinks | <u>Individuals</u> |             |                |             |
|----------------|--------------------|-------------|----------------|-------------|
|                | <u>Males</u>       |             | <u>Females</u> |             |
|                | f                  | %           | f              | %           |
| Yes            | 253                | 39.7        | 55             | 8.9         |
| No             | <u>385</u>         | <u>60.3</u> | <u>560</u>     | <u>91.1</u> |
| TOTAL          | 638                | 100.0       | 615            | 100.0       |

TABLE 18. Number and Percent of Individuals Who Usually Drink Alcoholic Beverages by Gender, Ethnicity and Age (16+)

| Characteristics  | Individuals |       |
|------------------|-------------|-------|
|                  | f           | %     |
| <u>Gender</u>    |             |       |
| Male             | 253         | 82.0  |
| Female           | 55          | 18.0  |
| TOTAL            | 308         | 100.0 |
| -----            |             |       |
| <u>Ethnicity</u> |             |       |
| Chamorro         | 156         | 50.6  |
| Filipino         | 80          | 26.0  |
| Caucasian        | 35          | 11.4  |
| Other Islanders  | 7           | 2.3   |
| Asian            | 14          | 4.6   |
| All Others       | 16          | 5.2   |
| TOTAL            | 308         | 100.1 |
| -----            |             |       |
| <u>Age</u>       |             |       |
| 16 - 39          | 175         | 56.8  |
| 40 - 54          | 76          | 24.7  |
| 55 - 64          | 42          | 13.6  |
| 65 +             | 15          | 4.9   |
| TOTAL            | 308         | 100.0 |

TABLE 19. Usually Drink Alcoholic Beverages by Ethnicity

| Usually Drinks | Ethnicity (N=1,253) |             |            |             |           |             |                     |             |           |             |            |             |
|----------------|---------------------|-------------|------------|-------------|-----------|-------------|---------------------|-------------|-----------|-------------|------------|-------------|
|                | Chamorro            |             | Filipino   |             | Caucasian |             | Others<br>Islanders |             | Asians    |             | All Others |             |
|                | f                   | %           | f          | %           | f         | %           | f                   | %           | f         | %           | f          | %           |
| Yes            | 156                 | 22.2        | 80         | 20.8        | 35        | 61.4        | 7                   | 22.6        | 14        | 46.7        | 16         | 33.3        |
| No             | <u>546</u>          | <u>77.8</u> | <u>305</u> | <u>79.2</u> | <u>22</u> | <u>38.6</u> | <u>24</u>           | <u>77.4</u> | <u>16</u> | <u>53.3</u> | <u>32</u>  | <u>66.7</u> |
| TOTAL          | 702                 | 100.0       | 385        | 100.0       | 57        | 100.0       | 31                  | 100.0       | 30        | 100.0       | 48         | 100.0       |

Therefore, of those who drank alcohol, more than 4 of every 5 (82.0%) were males.

How ethnicity and one's age correlated to alcohol drinking patterns was studied, also. The findings appear in Tables 18 and 19. According to this research, most Caucasians reported to interviewers that they usually drank alcohol. The percentage figure was 61.4%. No other ethnic category even exceeded the 50.0% majority barrier, although 46.7% of the Asians who were surveyed considered themselves "usual" drinkers. In comparison, only about one-fifth (21-22%) of the Chamorros and Filipinos said that they were alcohol drinkers. In spite of this, when compared with the smaller ethnic groups, Chamorros and Filipinos made up 50.6% and 26.0%, respectively, of the 308 who said they drank. Caucasians--because of their 61.4% drinking rate--comprised 11.4% of all alcohol consumers even though their category represented only about 3.5% of the total study group (1).

The drinking age data (Table 20) shows the same pattern reported earlier in this section for smoking and age. The percentage of drinkers in the respective age categories increases with age until reaching the 55 to 64 age group--lower senior citizen bracket--where it leveled off and began its decline to 13.3% for the oldest of the older age groups. Because of the age structure of Guam's population (1), one-half (56.8%) of those who drank were in the 16 to 39 age group and 24.7% were in the 40 to 54 age group (Table 18).



TABLE 20. Usually Drink Alcoholic Beverages by Age (16+)

| Usually<br>Drinks | Age        |             |            |             |            |             |           |             |
|-------------------|------------|-------------|------------|-------------|------------|-------------|-----------|-------------|
|                   | 16-39      |             | 40-54      |             | 55-64      |             | 65+       |             |
|                   | f          | %           | f          | %           | f          | %           | f         | %           |
| Yes               | 175        | 24.6        | 76         | 27.9        | 42         | 26.6        | 15        | 13.3        |
| No                | <u>535</u> | <u>75.4</u> | <u>196</u> | <u>72.1</u> | <u>116</u> | <u>73.4</u> | <u>98</u> | <u>86.7</u> |
| TOTAL             | 710        | 100.0       | 272        | 100.0       | 158        | 100.0       | 113       | 100.0       |

### 2.3.2 Occurrence of Drinking

To fit the category of one who usually drinks alcoholic beverages, an individual had to consume at least one drink per month. Therefore, the range in occurrence of drinking extended from once a month to an upper limit of three times a day. The median occurrence of drinking was once or twice a week (Table 21).

Not only did more males than females drink, they also drank twice as frequently (Table 22). Males drank an average of twice a week, while females drank only "weekly".

Other than Asians who reported usually drinking an average of 2.5 times a week, very little variation in the frequency of drinking behavior was noted among the ethnic categories. All averaged drinking once per week (Table 23). Asians, therefore, were found to have drinking occurrence rates 2.5 times greater than any other ethnic group.

The occurrence of drinking began to increase substantially during the early senior years and continued to do so in the oldest age group. Drinking occurrences were 2 to 3 times

TABLE 21. How Often Drinks Alcoholic Beverages

| Frequency of Drinking | Individuals |       |        |
|-----------------------|-------------|-------|--------|
|                       | f           | %     | cum. % |
| 1/month               | 41          | 13.3  | 13.3   |
| 2-3/month             | 57          | 18.5  | 31.8   |
| 1/week                | 57          | 18.5  | 50.3   |
| 2-3/week              | 57          | 18.5  | 68.8   |
| 4-6/week              | 19          | 6.2   | 75.0   |
| 1/day                 | 50          | 16.2  | 91.2   |
| 2-3/day               | 20          | 6.5   | 97.7   |
| 3+/day                | 7           | 2.3   | 100.0  |
| TOTAL                 | 308         | 100.0 |        |
| Median                | 1-2/week    |       |        |

TABLE 22. Frequency of Drinking Alcoholic Beverages by Gender

| Frequency of Drinking | Gender |       |         |       |
|-----------------------|--------|-------|---------|-------|
|                       | Males  |       | Females |       |
|                       | f      | %     | f       | %     |
| 1/month               | 33     | 13.0  | 8       | 14.6  |
| 2-3/month             | 39     | 15.4  | 18      | 32.7  |
| 1/week                | 49     | 19.4  | 8       | 14.6  |
| 2-3/week              | 45     | 17.8  | 12      | 21.8  |
| 4-6/week              | 17     | 6.7   | 2       | 3.6   |
| 1/day                 | 46     | 18.2  | 4       | 7.3   |
| 2-3/day               | 19     | 7.5   | 1       | 1.8   |
| 3+/day                | 5      | 2.0   | 2       | 3.6   |
| TOTAL                 | 253    | 100.0 | 55      | 100.0 |
| Median                | 2/week |       | 1/week  |       |

TABLE 23. Frequency of Drinking Alcoholic Beverages by Ethnicity

| Frequency of<br>Drinking | Ethnicity |            |          |            |           |            |                    |          |          |          |            |          |
|--------------------------|-----------|------------|----------|------------|-----------|------------|--------------------|----------|----------|----------|------------|----------|
|                          | Chamorros |            | Filipino |            | Caucasian |            | Other<br>Islanders |          | Asians   |          | All Others |          |
|                          | f         | %          | f        | %          | f         | %          | f                  | %        | f        | %        | f          | %        |
| 1/month                  | 27        | 17.3       | 8        | 10.0       | 4         | 11.4       | 1                  | 14.3     | 1        | 7.1      | -          | -        |
| 2-3/month                | 35        | 22.4       | 9        | 11.3       | 7         | 20.0       | -                  | -        | 2        | 14.3     | 4          | 25.0     |
| 1/week                   | 21        | 13.5       | 15       | 18.8       | 9         | 25.7       | 3                  | 42.9     | 2        | 14.3     | 7          | 43.8     |
| 2-3/week                 | 29        | 18.6       | 14       | 17.5       | 5         | 14.3       | 1                  | 14.3     | 5        | 35.7     | 3          | 18.8     |
| 4-6/week                 | 10        | 6.4        | 4        | 5.0        | 2         | 5.7        | 1                  | 14.3     | 1        | 7.1      | 1          | 6.2      |
| 1/day                    | 21        | 13.5       | 20       | 25.0       | 6         | 17.1       | 1                  | 14.3     | 2        | 14.3     | -          | -        |
| 2-3/day                  | 9         | 5.8        | 8        | 10.0       | 1         | 2.9        | -                  | -        | 1        | 7.1      | 1          | 6.2      |
| 3/day +                  | <u>4</u>  | <u>2.6</u> | <u>2</u> | <u>2.5</u> | <u>1</u>  | <u>2.9</u> | <u>-</u>           | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u>   | <u>-</u> |
| TOTAL                    | 156       | 100.1      | 80       | 100.1      | 35        | 100.0      | 7                  | 100.1    | 14       | 99.9     | 16         | 100.0    |
| Median                   | 1/week    |            | 1/week   |            | 1/week    |            | 1/week             |          | 2.5/week |          | 1.5/week   |          |

TABLE 24. Frequency of Drinking Alcoholic Beverages by Age

| Frequency of Drinking | Age      |            |          |            |          |          |          |             |
|-----------------------|----------|------------|----------|------------|----------|----------|----------|-------------|
|                       | 16-39    |            | 40-54    |            | 55-64    |          | 65+      |             |
|                       | f        | %          | f        | %          | f        | %        | f        | %           |
| 1/month               | 19       | 10.9       | 13       | 17.1       | 6        | 14.3     | 3        | 20.0        |
| 2-3/month             | 38       | 21.7       | 13       | 17.1       | 5        | 11.9     | 1        | 6.7         |
| 1/week                | 37       | 21.1       | 14       | 18.4       | 5        | 11.9     | 1        | 6.7         |
| 2-3/week              | 42       | 24.0       | 8        | 10.5       | 6        | 14.3     | 1        | 6.7         |
| 4-6/week              | 9        | 5.1        | 8        | 10.5       | 2        | 4.8      | -        | -           |
| 1/day                 | 17       | 9.7        | 14       | 18.4       | 15       | 35.7     | 4        | 26.7        |
| 2-3/day               | 9        | 5.1        | 5        | 6.6        | 3        | 7.1      | 3        | 20.0        |
| 3+/day                | <u>4</u> | <u>2.3</u> | <u>1</u> | <u>1.3</u> | <u>-</u> | <u>-</u> | <u>2</u> | <u>13.3</u> |
| TOTAL                 | 175      | 99.9       | 76       | 99.9       | 42       | 100.0    | 15       | 100.1       |
| Median                | 1/week   |            | 1/week   |            | 2-3/week |          | 1/day    |             |

greater for those 55 to 64 years old than for those in their junior years. The average of drinking every day for individuals in the 65 or older age group placed them at a rate seven times greater than those 16 to 54 years old. This finding would tend to support the notion that a potential or severe drinking problem may exist among the eldest of the island's senior citizens.

### 2.3.3 Amount Consumed

The subjects who drank alcohol were asked how many beers, jiggers of liquor or glasses of wine (6 ounces) they usually drank at one occasion. The results appear in Tables 25 to 27 and are compared by the personal-social characteristics of gender, ethnicity and age.

Males averaged 3.5 cans of beer compared to 2.3 cans for females. Some males were heavy consumers. Several drank (on the average) 24 cans of beer per occasion. For females the range was one to six cans. The ratio of male beer drinkers to women beer drinkers was seven to one. Females who drank liquor also drank less than males; however, the ratio was approximately 3 to 2 in this instance. The drinking pattern reversed itself somewhat with regard to the use of wine. Nearly 60.0% of those who claimed to drink wine were females. However, they consumed about one-half glass less per average occasion than the males. The average consumption rate per setting for females was reported to be about two glasses (Table 25).

Filipinos were found to drink the least amount of beer per occasion and Other Islanders the most. Their average rate was

TABLE 25. Amount of Alcoholic Beverage Consumed Per Occasion by Gender

| Amount of<br>Alcoholic<br>Beverage | Gender |       |         |       | Total |       |
|------------------------------------|--------|-------|---------|-------|-------|-------|
|                                    | Males  |       | Females |       |       |       |
|                                    | f      | %     | f       | %     | f     | %     |
| <u>Cans of Beer</u>                |        |       |         |       |       |       |
| 1                                  | 45     | 19.1  | 10      | 31.3  | 55    | 20.6  |
| 2                                  | 50     | 21.3  | 9       | 28.1  | 59    | 22.1  |
| 3                                  | 56     | 23.8  | 10      | 31.3  | 66    | 24.7  |
| 4-6                                | 68     | 28.9  | 3       | 9.3   | 71    | 26.6  |
| 7+                                 | 16     | 6.8   | -       | -     | 16    | 6.0   |
| TOTAL                              | 235    | 99.9  | 32      | 100.0 | 267   | 100.0 |
| Median                             | 3.5    |       | 2.3     |       | 3.3   |       |
| Range                              | 1-24   |       | 1-6     |       | 1-24  |       |
| -----                              |        |       |         |       |       |       |
| <u>Jiggers of Liquor</u>           |        |       |         |       |       |       |
| 1                                  | 7      | 25.0  | 5       | 31.3  | 12    | 27.3  |
| 2                                  | 5      | 17.9  | 6       | 37.5  | 11    | 25.0  |
| 3-4                                | 12     | 42.9  | 4       | 25.0  | 16    | 36.4  |
| 5+                                 | 4      | 14.3  | 1       | 6.2   | 5     | 11.4  |
| TOTAL                              | 28     | 100.1 | 16      | 100.0 | 44    | 100.1 |
| Insufficient Data                  | 1      |       | 1       |       | 2     |       |
| Median                             | 3.4    |       | 2.5     |       | 2.8   |       |
| Range                              | 1-32   |       | 1-11    |       | 1-32  |       |
| -----                              |        |       |         |       |       |       |
| <u>Glasses of Wine</u>             |        |       |         |       |       |       |
| 1                                  | 5      | 31.2  | 11      | 50.0  | 16    | 42.1  |
| 2                                  | 7      | 43.8  | 5       | 22.7  | 12    | 31.6  |
| 3                                  | 4      | 25.0  | 6       | 27.3  | 10    | 26.3  |
| TOTAL                              | 16     | 100.0 | 22      | 100.0 | 38    | 100.0 |
| Median                             | 2.4    |       | 1.9     |       | 2.2   |       |
| Range                              | 1-3    |       | 1-3     |       | 1-3   |       |

TABLE 26. Amount of Alcoholic Beverage Consumed Per Occasion by Ethnicity

| Amount of<br>Alcoholic<br>Beverages | Ethnicity |       |          |       |           |       |                    |       |        |       |            |       |
|-------------------------------------|-----------|-------|----------|-------|-----------|-------|--------------------|-------|--------|-------|------------|-------|
|                                     | Chamorro  |       | Filipino |       | Caucasian |       | Other<br>Islanders |       | Asians |       | All Others |       |
|                                     | f         | %     | f        | %     | f         | %     | f                  | %     | f      | %     | f          | %     |
| <u>Cans of Beer</u>                 |           |       |          |       |           |       |                    |       |        |       |            |       |
| 1                                   | 23        | 16.4  | 22       | 30.6  | 2         | 8.3   | -                  | -     | 4      | 36.4  | 4          | 28.6  |
| 2                                   | 32        | 22.9  | 20       | 27.8  | 5         | 20.8  | -                  | -     | -      | -     | 2          | 14.3  |
| 3                                   | 37        | 26.4  | 17       | 23.6  | 8         | 33.3  | 1                  | 16.7  | 2      | 18.2  | 1          | 7.1   |
| 4-6                                 | 41        | 29.3  | 12       | 16.7  | 8         | 33.3  | 4                  | 66.6  | 4      | 36.4  | 2          | 14.3  |
| 7+                                  | 7         | 5.0   | 1        | 1.4   | 1         | 4.2   | 1                  | 16.7  | 1      | 9.1   | 5          | 35.7  |
| TOTAL                               | 140       | 100.0 | 72       | 100.1 | 24        | 99.9  | 6                  | 100.0 | 11     | 100.1 | 14         | 100.0 |
| Median                              | 3.5       |       | 2.7      |       | 3.6       |       | 5.0                |       | 3.5    |       | 3.9        |       |
| Range                               | 1-12      |       | 1-12     |       | 1-7       |       | 1-9                |       | 1-12   |       | 1-24       |       |
| -----                               |           |       |          |       |           |       |                    |       |        |       |            |       |
| <u>Jiggers of Liquor</u>            |           |       |          |       |           |       |                    |       |        |       |            |       |
| 1                                   | 4         | 22.2  | 4        | 36.4  | 1         | 14.3  | -                  | -     | 1      | 33.3  | 2          | 50.0  |
| 2                                   | 6         | 33.3  | 2        | 18.2  | 2         | 28.6  | -                  | -     | -      | -     | 1          | 25.0  |
| 3-4                                 | 6         | 33.3  | 3        | 27.3  | 4         | 57.1  | 1                  | 100.0 | 2      | 66.7  | -          | -     |
| 5+                                  | 2         | 11.1  | 2        | 18.2  | -         | -     | -                  | -     | -      | -     | 1          | 25.0  |
| TOTAL                               | 18        | 99.9  | 11       | 100.1 | 7         | 100.0 | 1                  | 100.0 | 3      | 100.0 | 4          | 100.0 |
| Median                              | 2.8       |       | 2.8      |       | 3.2       |       | 3.0                |       | 2.0    |       | 2.0        |       |
| Range                               | 1-25      |       | 1-32     |       | 1-4       |       | 1-3                |       | 1-4    |       | 1-11       |       |
| Insufficient Data                   | 2         |       | -        |       | -         |       | -                  |       | -      |       | -          |       |
| -----                               |           |       |          |       |           |       |                    |       |        |       |            |       |
| <u>Glasses of Wine</u>              |           |       |          |       |           |       |                    |       |        |       |            |       |
| 1                                   | 4         | 30.8  | 2        | 50.0  | 7         | 43.8  | -                  | -     | 1      | 50.0  | 2          | 100.0 |
| 2                                   | 4         | 30.8  | 2        | 50.0  | 4         | 25.0  | 1                  | 100.0 | 1      | 50.0  | -          | -     |
| 3                                   | 5         | 38.4  | -        | -     | 5         | 31.2  | -                  | -     | -      | -     | -          | -     |
| TOTAL                               | 13        | 100.0 | 4        | 100.0 | 16        | 100.0 | 1                  | 100.0 | 2      | 100.0 | 2          | 100.0 |
| Median                              | 2.9       |       | 1.9      |       | 2.2       |       | 2.5                |       | 1.9    |       | 1.5        |       |
| Range                               | 1-3       |       | 1-2      |       | 1-3       |       | -2-                |       | 1-2    |       | -1-        |       |

TABLE 27. Amount of Alcoholic Beverage Consumed Per Occasion by Age

| Amount of<br>Alcoholic<br>Beverage | Age   |       |       |       |       |       |     |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-----|-------|
|                                    | 16-39 |       | 40-54 |       | 55-64 |       | 65+ |       |
|                                    | f     | %     | f     | %     | f     | %     | f   | %     |
| <u>Cans of Beer</u>                |       |       |       |       |       |       |     |       |
| 1                                  | 23    | 15.5  | 12    | 17.7  | 15    | 37.5  | 5   | 45.4  |
| 2                                  | 28    | 18.9  | 17    | 25.0  | 11    | 27.5  | 3   | 27.3  |
| 3                                  | 38    | 25.7  | 19    | 27.9  | 7     | 17.5  | 2   | 18.2  |
| 4-6                                | 46    | 31.1  | 17    | 25.0  | 7     | 17.5  | 1   | 9.1   |
| 7+                                 | 13    | 8.8   | 3     | 4.4   | -     | -     | -   | -     |
| TOTAL                              | 148   | 100.0 | 68    | 100.0 | 40    | 100.0 | 11  | 100.0 |
| Median                             | 3.1   |       | 3.3   |       | 2.4   |       | 1.5 |       |
| Range                              | 1-24  |       | 1-24  |       | 1-6   |       | 1-5 |       |
| -----                              |       |       |       |       |       |       |     |       |
| <u>Jiggers of Liquor</u>           |       |       |       |       |       |       |     |       |
| 1                                  | 6     | 25.0  | 2     | 14.3  | 2     | 66.7  | 2   | 66.7  |
| 2                                  | 4     | 16.7  | 6     | 42.9  | -     | -     | 1   | 33.3  |
| 3-4                                | 12    | 50.0  | 3     | 21.4  | 1     | 33.3  | -   | -     |
| 5+                                 | 2     | 8.3   | 3     | 21.4  | -     | -     | -   | -     |
| TOTAL                              | 24    | 100.0 | 14    | 100.0 | 3     | 100.0 | 3   | 100.0 |
| Median                             | 3.2   |       | 2.8   |       | 2.2   |       | 1.5 |       |
| Range                              | 1-32  |       | 1-32  |       | 1-3   |       | 1-2 |       |
| Insufficient<br>Data               | 1     |       | 1     |       | -     |       | -   |       |
| -----                              |       |       |       |       |       |       |     |       |
| <u>Glasses of Wine</u>             |       |       |       |       |       |       |     |       |
| 1                                  | 10    | 38.5  | 5     | 55.6  | 1     | 50.0  | -   | -     |
| 2                                  | 6     | 23.0  | 4     | 44.4  | 1     | 50.0  | 1   | 100.0 |
| 3                                  | 10    | 38.5  | -     | -     | -     | -     | -   | -     |
| TOTAL                              | 26    | 100.0 | 9     | 100.0 | 2     | 100.0 | 1   | 100.0 |
| Median                             | 2.5   |       | 1.8   |       | 1.5   |       | 2.0 |       |
| Range                              | 1-3   |       | 1-2   |       | 1-2   |       | -2- |       |



nearly double that for Filipinos. Caution should be exercised, however, in drawing definitive conclusions based on the small number of cases for Other Islanders. A closer observation of the data presented in Table 26 reveals that the range in average number of beers consumed by Other Islanders was from 1 to 9, while for Filipinos it was 1 to 12. Compared with beer drinkers, the number who drank liquor or wine was extremely small. Therefore, frequencies within the various ethnic groups are generally too small to suggest differences or even trends towards differences.

Although it was reported earlier in this section that the drinking occasions increased substantially for individuals as they became older, this study revealed that the amount consumed during an occasion of drinking decreased as age increased (Table 27). This trend held true both for beer and liquor consumption.

TABLE 28. Advised by Doctor to Stop Drinking Alcoholic Beverages

| Response | <u>Individuals</u> |             |
|----------|--------------------|-------------|
|          | <u>f</u>           | <u>%</u>    |
| Yes      | 35                 | 11.4        |
| No       | <u>273</u>         | <u>88.6</u> |
| TOTAL    | 308                | 100.0       |

#### 2.3.4 Advised to Stop Drinking

Table 28 indicates that 35 of the 308 (11.4%) individuals who reported that they usually drank alcoholic beverages had

been advised by a medical doctor to stop the practice. This figure was only about one-third as large as the figure reported for smokers having received the same advice from their doctors.

### 2.3.5 Driving After Drinking

Individuals who drive a car after drinking risk not only their lives and health, but those of others. When asked how many times during the past 12 months they had driven a vehicle after consuming an alcoholic beverage, 276 of the 308 who drank reported having done so. The average for males was 2.0 times during the year, while the average for females was 1.3--about once every 9 or 10 months.

Caucasians had the highest rate (2.2) for driving after drinking as did the youngest age group who were between 16 and 39 years old (Tables 29, 30, and 31).

TABLE 29. Times Drove a Vehicle During Past 12 Months After Consuming an Alcoholic Beverage by Gender

| Times Driven      | Gender    |             |           |             | Total     |             |
|-------------------|-----------|-------------|-----------|-------------|-----------|-------------|
|                   | Males     |             | Females   |             |           |             |
|                   | f         | %           | f         | %           | f         | %           |
| None              | 95        | 40.9        | 19        | 43.2        | 114       | 41.3        |
| 1 - 3             | 64        | 27.6        | 13        | 29.6        | 77        | 27.9        |
| 4 - 6             | 19        | 8.2         | -         | -           | 19        | 6.9         |
| 7 - 10            | 16        | 6.9         | 2         | 4.5         | 18        | 6.5         |
| 11 +              | <u>38</u> | <u>16.4</u> | <u>10</u> | <u>22.7</u> | <u>48</u> | <u>17.4</u> |
| TOTAL             | 232       | 100.0       | 44        | 100.0       | 276       | 100.0       |
| Insufficient Data | 19        |             | 9         |             | 28        |             |
| Median            | 2         |             | 1.3       |             | 1.6       |             |

TABLE 30. Times Drove a Vehicle During Past 12 Months After Consuming an Alcoholic Beverage by Ethnicity

| Times Driven      | Ethnicity |             |          |             |           |             |                 |             |          |            |          |          |
|-------------------|-----------|-------------|----------|-------------|-----------|-------------|-----------------|-------------|----------|------------|----------|----------|
|                   | Chamorro  |             | Filipino |             | Caucasian |             | Other Islanders |             | Asian    |            | All      | Others   |
|                   | f         | %           | f        | %           | f         | %           | f               | %           | f        | %          | f        | %        |
| None              | 59        | 42.1        | 29       | 42.6        | 11        | 32.4        | 4               | 66.7        | 7        | 53.8       | 4        | 26.7     |
| 1 - 3             | 34        | 24.3        | 21       | 30.9        | 10        | 29.4        | 1               | 16.7        | 1        | 7.7        | 10       | 66.7     |
| 4 - 6             | 9         | 6.4         | 5        | 7.4         | 2         | 5.9         | -               | -           | 2        | 15.4       | 1        | 6.6      |
| 7 - 10            | 10        | 7.1         | 4        | 5.9         | 2         | 5.9         | -               | -           | 2        | 15.4       | -        | -        |
| 11 +              | <u>28</u> | <u>20.0</u> | <u>9</u> | <u>13.2</u> | <u>9</u>  | <u>26.5</u> | <u>1</u>        | <u>16.7</u> | <u>1</u> | <u>7.7</u> | <u>-</u> | <u>-</u> |
| TOTAL             | 140       | 99.9        | 68       | 100.0       | 34        | 100.1       | 6               | 100.1       | 13       | 100.0      | 15       | 100.0    |
| Insufficient Data | 12        |             | 12       |             | 1         |             | 1               |             | 1        |            | 1        |          |
| Median            | 1.6       |             | 1.5      |             | 2.2       |             | 0.9             |             | 0.9      |            | 1.6      |          |

TABLE 31. Times Drove a Vehicle During Past 12 Months After Consuming an Alcoholic Beverage by Age

| Times Driven      | Age       |             |           |             |          |             |          |          |
|-------------------|-----------|-------------|-----------|-------------|----------|-------------|----------|----------|
|                   | 16-39     |             | 40-54     |             | 55-64    |             | 65+      |          |
|                   | f         | %           | f         | %           | f        | %           | f        | %        |
| None              | 55        | 34.2        | 30        | 46.2        | 19       | 51.4        | 10       | 76.9     |
| 1 - 3             | 51        | 31.7        | 15        | 23.1        | 9        | 24.3        | 2        | 15.4     |
| 4 - 6             | 11        | 6.8         | 7         | 10.8        | 1        | 2.7         | -        | -        |
| 7 - 10            | 14        | 8.7         | 2         | 3.1         | 1        | 2.7         | 1        | 7.7      |
| 11 +              | <u>30</u> | <u>18.6</u> | <u>11</u> | <u>16.9</u> | <u>7</u> | <u>18.9</u> | <u>-</u> | <u>-</u> |
| TOTAL             | 161       | 100.0       | 65        | 100.1       | 37       | 100.0       | 13       | 100.0    |
| Insufficient Data | 12        |             | 10        |             | 4        |             | 2        |          |
| Median            | 1.6       |             | 1.2       |             | 0.9      |             | 0.6      |          |

## 2.4 Seasoning of Food

In addition to learning about the subjects' smoking and drinking life-styles, an attempt was made to gain a greater knowledge of their food consumption and eating practices. The particular question of interest here was number 27.\* It referred to the cultural practice of seasoning one's food with condiments such as soy sauce, finadene, ajinomoto (MSG) or salt. Although the nature of the relationship between excessive sodium intake and certain diseases or particular health problems is not fully understood, harmful effects have been noted for many years.

This discussion reviews the level or frequency of use of the food seasoning groups just mentioned and the differences, if any, among the various major ethnic categories of the sample. In view of the cultural aspects of food eating practices, one would expect or hypothesize that significant differences would be found among cultures and, therefore, among ethnic groups. The relationship between various eating practices and specific disease rates should be investigated with the use of strict controls on data. Many of the marked cultural variations or eating practices among the ethnic groups on the island and their impact on health conditions may be misinterpreted unless characteristics of occupation, levels of physical activity and so forth are held constant. What may be found to appear as an excessive intake rate of sodium, for example, would probably not have the same effect on the health

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\*See Appendix C

or well-being of physically active construction workers as compared with more sedentary individuals who spend their work time at a desk inside an air-conditioned office.

With this caution advanced, it is suggested that a future, more intensive, analysis of these data be considered to determine possible trends or relationships between food intake practices and levels of health. Agencies considering future health behavior surveys similar to the one utilized in this study should also gather height and weight information from the subjects as well as other relevant anatomical data for inclusion in the research analysis.

#### 2.4.1 Level of Use

As noted in Table 32, 40.0% of all 1,928 subjects reported using food seasonings on a daily basis. An additional 18.9% used them at a rate defined as "often." Combined, these two percentage figures comprised 58.9% of the entire group. Less than one-fifth (17.2%) claimed that they rarely or never used sodium-based seasonings while eating.

#### 2.4.2 Use Patterns and Ethnicity

There definitely were ethnic-cultural variations in the extent to which soy sauce, finadene, MSG and salt were used to season food while eating. Nearly three-fourths (74.3%) of the Asians and two-thirds (67.0%) of the Chamorros used such food seasonings "very often" or on a daily basis. This compared to less than half (45.4% - 48.3%) of the Filipinos, Caucasians and Other Islanders who mentioned that they often used seasonings on their food or did so everyday (Table 32).

TABLE 32. Frequency of Using Food Seasonings at the Table by Ethnicity

| Frequency<br>of Use        | Ethnicity  |             |            |             |           |             |                    |             |          |            |           |             |            |             |
|----------------------------|------------|-------------|------------|-------------|-----------|-------------|--------------------|-------------|----------|------------|-----------|-------------|------------|-------------|
|                            | Chamorro   |             | Filipino   |             | Caucasian |             | Other<br>Islanders |             | Asian    |            | All       | Others      | Total      |             |
|                            | f          | %           | f          | %           | f         | %           | f                  | %           | f        | %          | f         | %           | f          | %           |
|                            |            |             |            |             |           |             |                    |             |          |            |           |             |            |             |
| Always/<br>Every day       | 532        | 47.6        | 140        | 25.8        | 16        | 23.5        | 25                 | 43.1        | 23       | 65.7       | 35        | 32.4        | 771        | 40.0        |
| Often                      | 217        | 19.4        | 106        | 19.6        | 15        | 22.1        | 3                  | 5.2         | 3        | 8.6        | 20        | 18.5        | 364        | 18.9        |
| Occasionally/<br>Sometimes | 198        | 17.7        | 189        | 34.9        | 17        | 25.0        | 24                 | 41.4        | 6        | 17.1       | 26        | 24.1        | 460        | 23.9        |
| Rarely/Never               | <u>170</u> | <u>15.3</u> | <u>107</u> | <u>19.7</u> | <u>20</u> | <u>29.4</u> | <u>6</u>           | <u>10.3</u> | <u>3</u> | <u>8.6</u> | <u>27</u> | <u>25.0</u> | <u>333</u> | <u>17.2</u> |
| TOTAL                      | 1,117      | 100.0       | 542        | 100.0       | 68        | 100.0       | 58                 | 100.0       | 35       | 100.0      | 108       | 100.0       | 1,928      | 100.0       |

Major differences were also noted among those who rarely or never added extra seasoning to their food while dining. Nearly 30.0% of the Caucasians fell into this classification, as compared to percentage figures ranging from 8.6 to 19.7 for the other major categories.

These data make no attempt to establish motives for the variations in food eating patterns, although cultural traits must certainly have been a part of it. The extent to which certain groups of individuals have been exposed to health information programs was not studied in this survey. Interests in such programs were explored in Volume Four of this report series (9); previous experience or health education training was not. As was mentioned in the previous report, Caucasians showed a very high interest in health informational programs and--to a greater extent--were more willing to pay a fee to participate in them. This suggests, obviously, the possibility or likelihood that differential levels of health well-being prevail among the various cultural groups.



## SECTION THREE

### MENTAL HEALTH

#### 3.1 Introduction

Two major sets of questions (29 through 30a) were asked. These related to the mental well-being of the study population. One set focused on the extent to which individuals were experiencing emotional problems and their possible causes. The other set dealt with medications or drugs taken to relax a person or affect his mood.

#### 3.2 Levels of Anxiety or Emotional Well-Being

Those interviewed were asked who in their households had experienced periods of being greatly upset, troubled, or depressed (due to specific types of problems) for more than a few days during the two-week period prior to this study. The problems mentioned to interviewees included those within the family, divorce or separation, illness or death of immediate family, pressure associated with work or school, loss of a job, or financial concerns. Their responses are presented in Tables 33, 34 and 35.

Sixty-seven individuals (3.5%) were reported to have been suffering from severe levels of mental stress. When projecting this number to the islandwide population, one could expect approximately 3,685 individuals during any day to be in such an emotional state or mental condition.

TABLE 33. Greatly Upset, Troubled or Depressed by Gender

| Response             | Gender     |             |            |             | Total        |             |
|----------------------|------------|-------------|------------|-------------|--------------|-------------|
|                      | Males      |             | Females    |             |              |             |
|                      | f          | %           | f          | %           | f            | %           |
| Yes                  | 22         | 2.2         | 45         | 4.8         | 67           | 3.5         |
| No                   | <u>960</u> | <u>97.8</u> | <u>893</u> | <u>95.2</u> | <u>1,853</u> | <u>96.5</u> |
| TOTAL                | 982        | 100.0       | 938        | 100.0       | 1,920        | 100.0       |
| -----                |            |             |            |             |              |             |
| Insufficient<br>Data | 3          |             | 5          |             | 8            |             |

With regard to differences among the various categories of individuals and their level of mental health, this study revealed that the reporting rate of the females was more than twice as great as it was for the males (Table 33). Significant differences were also evident among the ethnic groupings. Only 1.7% of the Filipinos reported such a level of mental illness as compared with a high of 8.8% among Caucasians. Except for the Filipinos and Asians, all other ethnic groups representing migrants to the island had larger percentages of troubled individuals than reported by those of Chamorro ancestry (Table 34). The most stressful years of life appeared to be in the 16 to 39 age range. A total of 6.6% (nearly double the total sample average) of this young-adult to early middle-aged group was reported to be suffering from emotional problems. The rate dropped in a linear fashion as individuals became progressively older (Table 35) except for those who were age 65 or older.

TABLE 34. Greatly Upset, Troubled or Depressed by Ethnicity

| Response          | Ethnicity    |             |            |             |           |             |                 |             |           |             |            |             |
|-------------------|--------------|-------------|------------|-------------|-----------|-------------|-----------------|-------------|-----------|-------------|------------|-------------|
|                   | Chamorro     |             | Filipino   |             | Caucasian |             | Other Islanders |             | Asian     |             | All        | Others      |
|                   | f            | %           | f          | %           | f         | %           | f               | %           | f         | %           | f          | %           |
| Yes               | 41           | 3.7         | 9          | 1.7         | 6         | 8.8         | 3               | 5.2         | 1         | 2.9         | 7          | 6.5         |
| No                | <u>1,076</u> | <u>96.3</u> | <u>526</u> | <u>98.3</u> | <u>62</u> | <u>91.2</u> | <u>55</u>       | <u>94.8</u> | <u>34</u> | <u>97.1</u> | <u>100</u> | <u>93.5</u> |
| TOTAL             | 1,117        | 100.0       | 535        | 100.0       | 68        | 100.0       | 58              | 100.0       | 35        | 100.0       | 107        | 100.0       |
| Insufficient Data | -            |             | 7          |             | -         |             | -               |             | -         |             | 1          |             |

TABLE 35. Greatly Upset, Troubled or Depressed by Age

| Response          | Age          |             |            |             |            |             |            |             |            |             |
|-------------------|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|                   | Less than 16 |             | 16-39      |             | 40-54      |             | 55-64      |             | 65+        |             |
|                   | f            | %           | f          | %           | f          | %           | f          | %           | f          | %           |
| Yes               | 1            | 0.1         | 44         | 6.6         | 13         | 4.8         | 5          | 3.2         | 4          | 3.6         |
| No                | <u>670</u>   | <u>99.9</u> | <u>665</u> | <u>93.4</u> | <u>257</u> | <u>95.2</u> | <u>153</u> | <u>96.8</u> | <u>108</u> | <u>96.4</u> |
| TOTAL             | 671          | 100.0       | 709        | 100.0       | 270        | 100.0       | 158        | 100.0       | 112        | 100.0       |
| Insufficient Data | 4            |             | 1          |             | 2          |             | -          |             | 1          |             |

This group showed a slightly larger percentage than did their immediately junior cohorts.

### 3.3 Stress Factor

The 67 individuals who indicated they were psychologically or emotionally troubled were asked to share with the research project interviewers their perceived causes or reasons for this mental state. All but two were willing to discuss their situation in greater detail. Two major and several additional reasons were noted upon inspection of Table 36.

TABLE 36. Reason for Being Troubled, Upset or Depressed

| Nature of Problem                    | Individuals |      |
|--------------------------------------|-------------|------|
|                                      | f           | %    |
| Family problems                      | 19          | 29.2 |
| Death or illness in immediate family | 19          | 29.2 |
| Death or illness among relatives     | 3           | 4.6  |
| Divorce or separation                | 5           | 7.7  |
| Job problems                         | 8           | 12.3 |
| Moving                               | 1           | 1.5  |
| Homesick                             | 3           | 4.6  |
| Money problems                       | 4           | 6.2  |
| Other                                | 3           | 4.6  |
| TOTAL                                | 65          | 99.9 |
| -----                                |             |      |
| Insufficient Data                    | 2           |      |

Family problems and death in one's immediate family each accounted for 29.2% of those reasons given. Job problems was the next most frequently mentioned reason individuals gave as a cause for the stressful situation in which they perceived themselves. As mentioned above, females were twice as likely to report having emotional problems or trouble than males. With regard to family problems, however, the ratio increased to 3 to 1. A death or illness in one's family was mainly a stress generating problem for the females, also. Four out of every five who gave this reason were women. Family related problems of divorce and separation were found primarily to be problems that caused emotional stress for Caucasians and Chamorro females in their mid-years, while more males found job-related problems the reason for their lack of emotional well-being. Three of the four who mentioned money--or lack of it--as the root cause of their trouble or depression were males. Of particular interest was the analysis of the three subjects who found themselves homesick. Two were elderly, male Filipinos, while the third was a Chamorro.

### 3.4 Medication and Drug Utilization

Interviewers also asked the 400 household respondents if anyone in their household used medications or drugs to affect their mood or to help them relax. A slightly larger proportion of females than males responded in the affirmative (Table 37). The 8.8% figure noted for Caucasians was more than three times larger than the total sample average of 2.9%. The oldest individuals reported the largest percentage of medicine or drug

TABLE 37. Uses Medication or Drugs that Affect Mood or Help Relaxation by Gender

| Response             | Gender     |             |            |             | Total        |             |
|----------------------|------------|-------------|------------|-------------|--------------|-------------|
|                      | Males      |             | Females    |             |              |             |
|                      | f          | %           | f          | %           | f            | %           |
| Yes                  | 24         | 2.4         | 32         | 3.4         | 56           | 2.9         |
| No                   | <u>959</u> | <u>97.6</u> | <u>911</u> | <u>96.6</u> | <u>1,870</u> | <u>97.1</u> |
| TOTAL                | 983        | 100.0       | 943        | 100.0       | 1,926        | 100.0       |
| -----                |            |             |            |             |              |             |
| Insufficient<br>Data | 2          |             | -          |             | 2            |             |

users for this specific purpose, while those in the 16 to 39 age category were next.

With regard to the frequency that the drugs and medicine were used to initiate relaxation or mood changes, it was of interest to see that 50.0% of the males said they used them "frequently" in contrast to 38.7% for the females. Some variation in the frequency of use of medicine and drugs among the ethnic groups was noted (Table 41). The percentage figures for the "frequently" category were 40.6 for the Chamorros, 50.0 for Caucasians, and 58.3 for Filipinos. Four out of the six (66.7%) senior citizens who were at least 65 years old were using medication or drugs on a frequent basis.

TABLE 38. Uses Medication or Drugs that Affect Mood or Help Relaxation by Ethnicity

| Response          | Ethnicity    |             |            |             |           |             |                 |             |           |              |            |             |
|-------------------|--------------|-------------|------------|-------------|-----------|-------------|-----------------|-------------|-----------|--------------|------------|-------------|
|                   | Chamorro     |             | Filipino   |             | Caucasian |             | Other Islanders |             | Asian     |              | All Others |             |
|                   | f            | %           | f          | %           | f         | %           | f               | %           | f         | %            | f          | %           |
| Yes               | 32           | 2.9         | 12         | 2.2         | 6         | 8.8         | 3               | 5.2         | -         | -            | 2          | 1.9         |
| No                | <u>1,085</u> | <u>97.1</u> | <u>528</u> | <u>97.8</u> | <u>62</u> | <u>91.2</u> | <u>55</u>       | <u>94.8</u> | <u>35</u> | <u>100.0</u> | <u>105</u> | <u>98.1</u> |
| TOTAL             | 1,117        | 100.0       | 540        | 100.0       | 68        | 100.0       | 58              | 100.0       | 35        | 100.0        | 107        | 100.0       |
| Insufficient Data | -            |             | 2          |             | -         |             | -               |             | -         |              | 1          |             |



TABLE 39. Uses Medication or Drugs that Affect Mood or Help Relaxation by Age

| Response          | Age          |             |            |             |            |             |            |             |            |             |
|-------------------|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|                   | Less than 16 |             | 16-39      |             | 40-54      |             | 55-64      |             | 65+        |             |
|                   | f            | %           | f          | %           | f          | %           | f          | %           | f          | %           |
| Yes               | 8            | 1.2         | 27         | 3.8         | 11         | 4.1         | 3          | 1.9         | 6          | 5.3         |
| No                | <u>666</u>   | <u>98.8</u> | <u>682</u> | <u>96.2</u> | <u>260</u> | <u>95.9</u> | <u>155</u> | <u>98.1</u> | <u>107</u> | <u>94.7</u> |
| TOTAL             | 674          | 100.0       | 709        | 100.0       | 271        | 100.0       | 158        | 100.0       | 113        | 100.0       |
| Insufficient Data | 1            |             | 1          |             | 1          |             | -          |             | -          |             |

TABLE 40. Frequency of Using Medicine or Drugs by Gender

| Response                   | Gender   |            |          |             | Total    |             |
|----------------------------|----------|------------|----------|-------------|----------|-------------|
|                            | Males    |            | Females  |             |          |             |
|                            | f        | %          | f        | %           | f        | %           |
| Frequently                 | 12       | 50.0       | 12       | 38.7        | 24       | 43.6        |
| Occasionally/<br>Sometimes | 10       | 41.7       | 15       | 48.4        | 25       | 45.5        |
| Never or<br>Rarely         | <u>2</u> | <u>8.3</u> | <u>4</u> | <u>12.9</u> | <u>6</u> | <u>10.9</u> |
| TOTAL                      | 24       | 100.0      | 31       | 100.0       | 55       | 100.0       |
| Insufficient<br>Data       | -        |            | 1        |             | 1        |             |

TABLE 41. Frequency of Using Medicine or Drugs by Ethnicity

| Response                      | Ethnicity |             |          |             |           |          |                 |          |          |          |          |             |
|-------------------------------|-----------|-------------|----------|-------------|-----------|----------|-----------------|----------|----------|----------|----------|-------------|
|                               | Chamorro  |             | Filipino |             | Caucasian |          | Other Islanders |          | Asian    |          | All      | Others      |
|                               | f         | %           | f        | %           | f         | %        | f               | %        | f        | %        | f        | %           |
| Frequently                    | 13        | 40.6        | 7        | 58.3        | 3         | 50.0     | -               | -        | -        | -        | -        | -           |
| Occasionally/<br>or Sometimes | 15        | 46.9        | 3        | 25.0        | 3         | 50.0     | 3               | 100.0    | -        | -        | 1        | 50.0        |
| Never or<br>Rarely            | <u>4</u>  | <u>12.5</u> | <u>2</u> | <u>16.7</u> | <u>-</u>  | <u>-</u> | <u>-</u>        | <u>-</u> | <u>-</u> | <u>-</u> | <u>1</u> | <u>50.0</u> |
| TOTAL                         | 32        | 100.0       | 12       | 100.0       | 6         | 100.0    | 3               | 100.0    | -        | -        | 2        | 100.0       |

TABLE 42. Frequency of Using Medicine or Drugs by Age

| Response               | Age          |       |       |       |       |       |       |       |     |       |
|------------------------|--------------|-------|-------|-------|-------|-------|-------|-------|-----|-------|
|                        | Less than 16 |       | 16-39 |       | 40-54 |       | 55-64 |       | 65+ |       |
|                        | f            | %     | f     | %     | f     | %     | f     | %     | f   | %     |
| Frequently             | 4            | 50.0  | 12    | 44.4  | 4     | 36.4  | -     | -     | 4   | 66.7  |
| Occasionally/Sometimes | 4            | 50.0  | 13    | 48.2  | 5     | 45.5  | 2     | 66.7  | 1   | 16.7  |
| Never or Rarely        | -            | -     | 2     | 7.4   | 2     | 18.2  | 1     | 33.3  | 1   | 16.7  |
| TOTAL                  | 8            | 100.0 | 27    | 100.0 | 11    | 100.1 | 3     | 100.0 | 6   | 100.1 |

## SECTION FOUR

### HEALTH FITNESS AND EXERCISE

#### 4.1 Introduction

Exercise--as a means of achieving or maintaining physical and mental well-being--has been promoted extensively during recent years. On the island over the past five to ten years, physical activities such as tennis, swimming, jogging, bicycling and aerobic workouts have gained popularity. It is presumed that the level of health and fitness consciousness has increased as growing numbers of individuals have modified their life-styles to include extensive and frequent physical training and exercise periods. Future studies will be able to utilize the baseline data gathered in this research effort in order to ascertain if, indeed, the assumed trend of greater involvement of the island population in formal and personal exercise programs has contributed to an improved physical and mental health status of the people on Guam.

#### 4.2 Level of Health Fitness

The number of individuals in each household who exercised at least three times per week was determined during the basic interview from responses to Question 22\*. These findings are presented in Table 43. As may be noted, approximately 4 out of every 10 persons exercised at least three times per week. Upon considering that this ratio was based on the total sample

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\*See Appendix C

TABLE 43. Exercise at Least Three Times a Week by Gender, Ethnicity and Age

| Exercise | Gender |       |         |       | Total |       |
|----------|--------|-------|---------|-------|-------|-------|
|          | Males  |       | Females |       |       |       |
|          | f      | %     | f       | %     | f     | %     |
| Yes      | 228    | 23.1  | 232     | 24.6  | 460   | 23.9  |
| No       | 757    | 76.9  | 711     | 75.4  | 1,468 | 76.1  |
| TOTAL    | 985    | 100.0 | 943     | 100.0 | 1,928 | 100.0 |

| Exercise | Ethnicity |       |          |       |           |       |     |        |
|----------|-----------|-------|----------|-------|-----------|-------|-----|--------|
|          | Chamorro  |       | Filipino |       | Caucasian |       | All | Others |
|          | f         | %     | f        | %     | f         | %     | f   | %      |
| Yes      | 275       | 24.6  | 111      | 20.5  | 37        | 54.4  | 37  | 18.4   |
| No       | 842       | 75.4  | 431      | 79.5  | 31        | 45.6  | 164 | 81.6   |
| TOTAL    | 1,117     | 100.0 | 542      | 100.0 | 68        | 100.0 | 201 | 100.0  |

| Exercise | Age          |       |       |       |       |       |       |       |     |       |
|----------|--------------|-------|-------|-------|-------|-------|-------|-------|-----|-------|
|          | Less than 16 |       | 16-39 |       | 40-54 |       | 55-64 |       | 65+ |       |
|          | f            | %     | f     | %     | f     | %     | f     | %     | f   | %     |
| Yes      | 81           | 12.8  | 223   | 31.4  | 81    | 29.8  | 43    | 27.2  | 32  | 28.3  |
| No       | 554          | 87.2  | 487   | 68.6  | 191   | 70.2  | 115   | 72.8  | 81  | 71.7  |
| TOTAL    | 635          | 100.0 | 710   | 100.0 | 272   | 100.0 | 158   | 100.0 | 113 | 100.0 |

including small infants, it is obvious that the proportion of adults who exercised was even greater. This conclusion was affirmed by the data appearing in Table 43. Only 12.8% of the infants and youth who were under 16 years of age were reported to have an active exercise program; for other age categories the comparable figures ranged from 27.2% to 28.3% for the senior citizens and slightly higher for the other adult age groups.

With regard to gender and ethnicity, there was no significant difference between the proportion of males and females who regularly exercised. Variations were observed primarily between Caucasians and all other ethnic groups. The proportion of Caucasians who exercised (54.4%) exceeded all other groups by two to three times (Table 43).

#### 4.3 Type and Extent of Exercise Program

A flash card\* that listed 10 different forms or types of exercise was presented to the interviewees for review. They were asked to indicate the activities they personally were involved with at least three times per week. In addition to those listed several more were added. It became evident that aerobics and stretching exercise programs were popular and needed to be added to the exercise list.

The frequencies and ranking of the various forms of exercise practiced by 460 sample members appear in Table 45. Also shown are multiple listings for those who were active in more than one type. The top three activities were yardwork

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\*See Appendix D, Flash Card M

TABLE 44. Number and Percent of Individuals Who Exercise by Gender, Ethnicity and Age

| Characteristics  | Individuals |             |
|------------------|-------------|-------------|
|                  | f           | %           |
| <u>Gender</u>    |             |             |
| Male             | 228         | 49.6        |
| Female           | <u>232</u>  | <u>50.4</u> |
| TOTAL            | 460         | 100.0       |
| -----            |             |             |
| <u>Ethnicity</u> |             |             |
| Chamorro         | 275         | 59.8        |
| Filipino         | 111         | 24.1        |
| Caucasian        | 37          | 8.0         |
| Other Islanders  | -           | -           |
| Asians           | -           | -           |
| All Others       | <u>37</u>   | <u>8.0</u>  |
| TOTAL            | 460         | 99.9        |
| -----            |             |             |
| <u>Age</u>       |             |             |
| Less than 16     | 81          | 17.6        |
| 16 - 39          | 223         | 48.5        |
| 40 - 54          | 81          | 17.6        |
| 55 - 64          | 43          | 9.3         |
| 65 +             | <u>32</u>   | <u>7.0</u>  |
| TOTAL            | 460         | 100.0       |



TABLE 45. Frequencies and Rank Order of Types of Exercise Performed on Regular Basis

| Type of Exercise           | Exercises Performed |                  |                 |           |             |      | Total |  |
|----------------------------|---------------------|------------------|-----------------|-----------|-------------|------|-------|--|
|                            | First<br>f Rank     | Second<br>f Rank | Third<br>f Rank | f*        | %           | Rank |       |  |
| Run/Jog                    | 83..... 2           | 6..... 9         | 1.....10        | 90        | 19.6.....   | 2    |       |  |
| Swimming                   | 18.....10           | 14..... 3        | 4..... 5        | 36        | 7.8.....    | 8    |       |  |
| Tennis                     | 2.....12            | 1.....12         | 3..... 6        | 6         | 1.3.....    | 12   |       |  |
| Baseball/Softball          | 19..... 9           | 9..... 5         | 2..... 8        | 30        | 6.5.....    | 9    |       |  |
| Basketball                 | 24..... 7           | 8..... 6         | 5..... 3        | 37        | 8.0.....    | 7    |       |  |
| Weights                    | 26..... 6           | 11..... 4        | 1.....10        | 38        | 8.3.....    | 6    |       |  |
| Yardwork                   | 85..... 1           | 21..... 2        | 5..... 3        | 111       | 23.9.....   | 1    |       |  |
| Housework                  | 37..... 5           | 43..... 1        | 9..... 1        | 89        | 19.3.....   | 3    |       |  |
| Racquetball                | 5.....11            | 3.....10         | 2..... 8        | 10        | 2.2.....    | 11   |       |  |
| Walking                    | 41..... 4           | 8..... 6         | 9..... 1        | 58        | 12.6.....   | 5    |       |  |
| Aerobics/Heavy<br>Workouts | 63..... 3           | 8..... 6         | 3..... 6        | 74        | 16.1.....   | 4    |       |  |
|                            | 63..... 3           | 8..... 6         | 3..... 6        | 74        | 16.1.....   | 4    |       |  |
| Stretch/Light<br>Workouts  | 24..... 7           | 3.....10         | - -             | 27        | 5.9.....    | 10   |       |  |
| Other                      | <u>33</u> -         | <u>18</u> -      | <u>9</u> -      | <u>60</u> | <u>13.0</u> | -    |       |  |
| TOTAL                      | 460                 | 153              | 53              | 666       |             |      |       |  |

\*Based on N=460 individuals who exercised at least three times per week.

(23.9%), running or jogging (19.6%) and housework (19.3%). Tennis placed twelfth on the ranking scale of 1 to 12 (Table 45). Tables 46, 47, and 48 show the same information rearranged by gender, ethnicity and age.

TABLE 46. Frequencies and Rank Order of Types of Exercise Performed on a Regular Basis by Gender

| Type of Exercise        | Gender      |          |      |               |          |      |
|-------------------------|-------------|----------|------|---------------|----------|------|
|                         | Males (228) |          |      | Females (232) |          |      |
|                         | f*          | %        | Rank | f*            | %        | Rank |
| Run/Jog                 | 49          | 21.5.... | 2    | 41            | 17.7.... | 4    |
| Swimming                | 20          | 8.8....  | 5    | 16            | 6.9....  | 6    |
| Tennis                  | 4           | 1.8....  | 11   | 2             | 0.9....  | 12   |
| Baseball/Softball       | 19          | 8.3....  | 6    | 11            | 4.7....  | 8    |
| Basketball              | 34          | 14.9.... | 3    | 3             | 1.3....  | 11   |
| Weights                 | 32          | 14.0.... | 4    | 6             | 2.6....  | 10   |
| Yardwork                | 62          | 27.2.... | 1    | 49            | 21.1.... | 3    |
| Housework               | 18          | 7.9....  | 8    | 71            | 30.6.... | 1    |
| Racquetball             | 2           | 0.9....  | 12   | 8             | 3.4....  | 9    |
| Walking                 | 19          | 8.3....  | 6    | 39            | 16.8.... | 5    |
| Aerobics/Heavy Workouts | 18          | 7.9....  | 8    | 56            | 24.1.... | 2    |
| Stretch/Light Workouts  | 13          | 5.7....  | 10   | 14            | 6.0....  | 7    |
| Other                   | 34          | 14.9     | --   | 26            | 11.2     | --   |

\*Total times named as first, second or third form of exercise.

More males did yardwork as a form of exercise; more females did housework. Running/jogging was very popular and

ranked second for the males, while aerobics was the next most popular exercise for the females. Nearly one out of every four mentioned it. As may be noted, basketball and weight lifting were ranked third and fourth by the males. Running/jogging was the fourth most frequent form of exercise in which females participated.

Differences in preferred forms or types of exercise activities practiced by ethnic groups appear in Table 47. Running/jogging was found to be the most popular activity of Filipinos while ranking second for Chamorros and fifth for Caucasians. Swimming generally ranked low except for the Caucasians.

As for age differences, yardwork was by far the most popular form of exercise for the oldest sample members (42.9%). Additionally, 28.6% of this group mentioned walking on a regular basis for exercise. There was a close correspondence in the rankings of exercise programs for youth under 16 years of age and those who were age 16 to 39. Both groups had the largest percentages of their members involved with running or jogging and were second most involved in aerobics or heavy workout exercise programs. The older individuals from middle-age onward tended to get their exercise more through yardwork and housework.

#### 4.4 Duration of Exercise Activity

The amount of time spent on exercising for the 460 individuals who exercised at least three times a week was determined through questioning. Based on the findings it would appear

TABLE 47. Frequencies and Rank Order of Types of Exercise Performed on a Regular Basis by Ethnicity

| Type of Exercise        | Ethnicity      |           |      |                |           |      |                |           |      |                 |           |      |
|-------------------------|----------------|-----------|------|----------------|-----------|------|----------------|-----------|------|-----------------|-----------|------|
|                         | Chamorro (372) |           |      | Filipino (162) |           |      | Caucasian (65) |           |      | All Others (67) |           |      |
|                         | f*             | %         | Rank | f*             | %         | Rank | f*             | %         | Rank | f*              | %         | Rank |
| Run/Jog                 | 49             | 13.2..... | 2    | 16             | 16.0..... | 1    | 6              | 9.2.....  | 5    | 9               | 13.4..... | 2    |
| Swimming                | 17             | 4.6.....  | 8    | 6              | 3.7.....  | 10   | 7              | 10.8..... | 4    | 6               | 9.0.....  | 5    |
| Tennis                  | 2              | 0.5.....  | 12   | 4              | 2.5.....  | 11   | -              | - .....   | 12   | -               | - .....   | 12   |
| Baseball/Softball       | 14             | 3.8.....  | 9    | 10             | 6.2.....  | 6    | 5              | 7.7.....  | 7    | 1               | 1.5.....  | 10   |
| Basketball              | 21             | 5.6.....  | 7    | 10             | 6.2.....  | 6    | 4              | 6.2.....  | 8    | 2               | 2.9.....  | 9    |
| Weights                 | 25             | 6.7.....  | 6    | 7              | 4.3.....  | 9    | 1              | 1.5.....  | 10   | 5               | 7.5.....  | 6    |
| Yardwork                | 70             | 18.8..... | 1    | 20             | 12.3..... | 3    | 9              | 13.8..... | 2    | 12              | 17.9..... | 1    |
| Housework               | 46             | 12.4..... | 3    | 23             | 14.2..... | 2    | 11             | 16.9..... | 1    | 9               | 13.4..... | 2    |
| Racquetball             | 7              | 1.9.....  | 11   | -              | - .....   | 12   | 2              | 3.1.....  | 9    | 1               | 1.5.....  | 10   |
| Walking                 | 35             | 9.4.....  | 5    | 14             | 8.6.....  | 5    | 6              | 9.2.....  | 5    | 3               | 4.5.....  | 8    |
| Aerobics/Heavy Workouts | 43             | 11.6..... | 4    | 17             | 10.5..... | 4    | 7              | 10.8..... | 3    | 7               | 10.5..... | 4    |
| Stretch/Light Workouts  | 12             | 3.2.....  | 10   | 10             | 6.2.....  | 6    | 1              | 1.5.....  | 10   | 4               | 6.0.....  | 7    |
| Other                   | 31             | 8.3       | -    | 15             | 9.3       | -    | 6              | 9.2       | -    | 8               | 11.9      | -    |

\*Total times named as first, second or third form of exercise.

TABLE 48. Frequencies and Rank Order of Types of Exercise Performed on a Regular Basis by Age

| Type of Exercise        | Age                   |         |      |             |         |      |             |         |      |            |         |      |          |         |      |
|-------------------------|-----------------------|---------|------|-------------|---------|------|-------------|---------|------|------------|---------|------|----------|---------|------|
|                         | Less than 16<br>(114) |         |      | 16-39 (332) |         |      | 40-54 (118) |         |      | 55-64 (60) |         |      | 65+ (42) |         |      |
|                         | f*                    | %       | Rank | f*          | %       | Rank | f*          | %       | Rank | f*         | %       | Rank | f*       | %       | Rank |
| Run/Jog                 | 19                    | 16.7... | 1    | 56          | 16.9... | 1    | 12          | 10.2... | 4    | 2          | 3.3...  | 5    | 1        | 2.4...  | 5    |
| Swimming                | 8                     | 7.0...  | 8    | 27          | 8.1...  | 6    | 1           | 0.8...  | 8    | -          | - ...   | -    | -        | - ...   | -    |
| Tennis                  | -                     | - ...   | 12   | 3           | 0.9...  | 12   | 1           | 0.8...  | 8    | 1          | 1.7...  | 8    | 1        | 2.4...  | 5    |
| Baseball/Softball       | 11                    | 9.6...  | 3    | 18          | 5.4...  | 8    | 1           | 0.8...  | 8    | -          | - ...   | -    | -        | - ...   | -    |
| Basketball              | 9                     | 7.9...  | 6    | 27          | 8.1...  | 6    | 1           | 0.8...  | 8    | -          | - ...   | -    | -        | - ...   | -    |
| Weights                 | 3                     | 2.6...  | 9    | 28          | 8.4...  | 5    | 5           | 4.2...  | 6    | 2          | 3.3...  | 5    | -        | - ...   | -    |
| Yardwork                | 9                     | 7.9...  | 6    | 35          | 10.6... | 3    | 30          | 25.5... | 2    | 19         | 31.7... | 1    | 18       | 42.9... | 1    |
| Housework               | 10                    | 8.8...  | 5    | 29          | 8.7...  | 4    | 31          | 26.3... | 1    | 11         | 18.3... | 2    | 8        | 19.0... | 3    |
| Racquetball             | 2                     | 1.8...  | 10   | 7           | 2.1...  | 11   | 1           | 0.8...  | 8    | -          | - ...   | -    | -        | - ...   | -    |
| Walking                 | 1                     | 0.9...  | 11   | 16          | 4.8...  | 9    | 18          | 15.3... | 3    | 11         | 18.3... | 2    | 12       | 28.6... | 2    |
| Aerobics/Heavy Workouts | 14                    | 12.3... | 2    | 48          | 14.5... | 2    | 8           | 6.8...  | 5    | 2          | 3.3...  | 5    | 2        | 4.8...  | 4    |
| Stretch/Light Workouts  | 11                    | 9.6...  | 3    | 9           | 2.7...  | 10   | 2           | 1.7...  | 7    | 5          | 8.3...  | 4    | -        | - ...   | -    |
| Other                   | 17                    | 14.9    | -    | 29          | 8.7     | -    | 7           | 5.9     | -    | 7          | 11.7    | -    | -        | -       | -    |

\*Total times named as first, second or third form of exercise.

TABLE 49. Amount of Time Spent Exercising Per Session by Gender, Ethnicity and Age

| Amount of<br>Time<br>(minutes) | Gender       |       |          |       |             |       |             |        |             |       |
|--------------------------------|--------------|-------|----------|-------|-------------|-------|-------------|--------|-------------|-------|
|                                | Males        |       | Females  |       | Total       |       |             |        |             |       |
|                                | f            | %     | f        | %     | f           | %     |             |        |             |       |
| 1 - 15                         | 10           | 4.4   | 23       | 9.9   | 33          | 7.2   |             |        |             |       |
| 16 - 30                        | 40           | 17.5  | 65       | 28.0  | 105         | 22.8  |             |        |             |       |
| 31 - 60                        | 61           | 26.8  | 64       | 27.6  | 125         | 27.2  |             |        |             |       |
| 61 +                           | 117          | 51.3  | 80       | 34.5  | 197         | 42.8  |             |        |             |       |
| TOTAL                          | 228          | 100.0 | 232      | 100.0 | 460         | 100.0 |             |        |             |       |
| Median (minutes)               | 60.1         |       | 43.5     |       | 53.0        |       |             |        |             |       |
| -----                          |              |       |          |       |             |       |             |        |             |       |
| Amount of<br>Time<br>(minutes) | Ethnicity    |       |          |       |             |       |             |        |             |       |
|                                | Chamorro     |       | Filipino |       | Caucasian   |       | All         | Others |             |       |
|                                | f            | %     | f        | %     | f           | %     | f           | %      |             |       |
| 1 - 15                         | 24           | 8.7   | 8        | 7.2   | 1           | 2.7   | -           | -      |             |       |
| 16 - 30                        | 68           | 24.7  | 27       | 24.3  | 4           | 10.8  | 6           | 16.2   |             |       |
| 31 - 60                        | 72           | 26.2  | 35       | 31.5  | 9           | 24.3  | 9           | 24.3   |             |       |
| 61 +                           | 111          | 40.4  | 41       | 36.9  | 23          | 62.2  | 22          | 59.5   |             |       |
| TOTAL                          | 275          | 100.0 | 111      | 99.9  | 37          | 100.0 | 37          | 100.0  |             |       |
| Median (minutes)               | 50.0         |       | 48.1     |       | 75.0 (est.) |       | 70.0 (est.) |        |             |       |
| -----                          |              |       |          |       |             |       |             |        |             |       |
| Amount of<br>Time<br>(minutes) | Age          |       |          |       |             |       |             |        |             |       |
|                                | Less than 16 |       | 16-39    |       | 40-54       |       | 55-64       |        | 65+         |       |
|                                | f            | %     | f        | %     | f           | %     | f           | %      | f           | %     |
| 1 - 15                         | 6            | 7.3   | 8        | 3.6   | 7           | 8.6   | 7           | 16.3   | 5           | 15.6  |
| 16 - 30                        | 14           | 17.1  | 63       | 28.4  | 19          | 23.5  | 5           | 11.6   | 4           | 12.5  |
| 31 - 60                        | 29           | 35.4  | 66       | 29.7  | 21          | 25.9  | 4           | 9.3    | 5           | 15.6  |
| 61 +                           | 33           | 40.2  | 85       | 38.3  | 34          | 42.0  | 27          | 62.8   | 18          | 56.3  |
| TOTAL                          | 82           | 100.0 | 222      | 100.0 | 81          | 100.0 | 43          | 100.0  | 32          | 100.0 |
| Median (minutes)               | 52.7         |       | 49.2     |       | 51.7        |       | 75.0 (est.) |        | 65.0 (est.) |       |

that this particular subgroup was very active. An observation of Table 49 will reveal that the average duration of exercise for the entire group was 53 minutes per session. For the average jogger this would be enough time to cover approximately five miles and for a runner about seven miles.

The median length of exercise time for males was one hour and for females was approximately three-fourths of an hour. Both groups seemed to be committing an extensive amount of leisure time to exercise activity.

There were also marked differences in the average amount of exercise time reported by the ethnic groups. Caucasians reported that an average session ran one and one-fourth hours. This was considerably longer than the 50 and 48 minutes, respectively, reported by Chamorros and Filipinos.

Of particular interest were the differences in the average length of time the various age groups devoted to exercise. As shown in Table 49, the length of the exercise periods generally increased as age increased for the adult population. Whether this occurred because of greater health consciousness or because of greater amounts of available leisure time is not known.

These data would lend support to the observation that lifestyles are changing to include extensive health fitness activities. An increase in the level of health consciousness is also evident.

SECTION FIVE  
PERSONAL SAFETY PROGRAMS

5.1 Introduction

The focus of this section's discussion is on the safety practice of wearing a seat belt while driving a vehicle or riding as a passenger, as well as on the interviewees' knowledge of several lifesaving techniques. Both are considered to be measures of health consciousness and were approached in Questions 28, 31 and 32.\*

5.2 Use of Seat Belts

According to the respondents, one-third of the total sample studied usually wore seat belts when riding in cars as passengers or as drivers (Table 50). No noticeable difference was observed in this regard between males and females.

Significant differences were evident among the individuals when analyzed by their ethnicity. Nearly three-fourths (72.1%) of the Caucasians made a practice of buckling up before starting the car for a ride. This was by far the highest average level of demonstrated concern for personal safety among the ethnic categories. Only 15.5% of the Other Islanders said that they wore seat belts. About one-third of the Chamorros, Filipinos, and Asians were shown to regularly wear the protective belts.

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\*See Appendix C



TABLE 50. Usually Wears a Seat Belt When Driving or Riding in a Car/Truck by Gender, Ethnicity and Age

| Response          | Gender       |       |          |       |           |       |                 |       |       |       |     |        |
|-------------------|--------------|-------|----------|-------|-----------|-------|-----------------|-------|-------|-------|-----|--------|
|                   | Males        |       | Females  |       | Total     |       |                 |       |       |       |     |        |
|                   | f            | %     | f        | %     | f         | %     |                 |       |       |       |     |        |
| Yes               | 332          | 33.8  | 310      | 32.9  | 642       | 33.4  |                 |       |       |       |     |        |
| No                | 651          | 66.2  | 632      | 67.1  | 1,283     | 66.6  |                 |       |       |       |     |        |
| TOTAL             | 983          | 100.0 | 942      | 100.0 | 1,925     | 100.0 |                 |       |       |       |     |        |
| Insufficient Data | 2            |       | 1        |       | 3         |       |                 |       |       |       |     |        |
| -----             |              |       |          |       |           |       |                 |       |       |       |     |        |
| Response          | Ethnicity    |       |          |       |           |       |                 |       |       |       |     |        |
|                   | Chamorro     |       | Filipino |       | Caucasian |       | Other Islanders |       | Asian |       | All | Others |
|                   | f            | %     | f        | %     | f         | %     | f               | %     | f     | %     | f   | %      |
| Yes               | 336          | 30.0  | 182      | 33.6  | 49        | 72.1  | 9               | 15.5  | 12    | 34.3  | 54  | 50.5   |
| No                | 780          | 69.9  | 359      | 66.4  | 19        | 27.9  | 49              | 84.5  | 23    | 65.7  | 53  | 49.5   |
| TOTAL             | 1,116        | 100.0 | 541      | 100.0 | 68        | 100.0 | 58              | 100.0 | 35    | 100.0 | 107 | 100.0  |
| Insufficient Data | 1            |       | 1        |       |           |       |                 |       |       |       | 1   |        |
| -----             |              |       |          |       |           |       |                 |       |       |       |     |        |
| Response          | Age          |       |          |       |           |       |                 |       |       |       |     |        |
|                   | Less than 16 |       | 16-39    |       | 40-54     |       | 55-64           |       | 65+   |       |     |        |
|                   | f            | %     | f        | %     | f         | %     | f               | %     | f     | %     |     |        |
| Yes               | 220          | 32.7  | 249      | 35.1  | 89        | 32.7  | 55              | 34.8  | 29    | 25.7  |     |        |
| No                | 453          | 67.3  | 460      | 64.9  | 183       | 67.3  | 103             | 65.1  | 84    | 74.3  |     |        |
| TOTAL             | 673          | 100.0 | 709      | 100.0 | 272       | 100.0 | 158             | 100.0 | 113   | 100.0 |     |        |
| Insufficient Data | 2            |       | 1        |       |           |       |                 |       |       |       |     |        |

Age was not a significant factor in determining who the seat-belt users were. The only possible exception to this statement would involve the oldest category of elderly. Only one-fourth said they regularly wore car seat belts.

### 5.3 First Aid Training

One hundred eighty-six out of 1,928 individuals studied (10.0%) had been trained in first aid techniques. The percentage figure was slightly higher for the males. Based on these findings and the high interest in first aid informational programs--as pointed out in the discussion included in Report Number Four (9)--the responsible agency could easily find an adequate number to train. The ethnicity variable continued to reveal major differences in first aid training. Only 1.7% of the Other Islanders had had such training, as compared with 6.5% of the Filipinos, 9.6% of the Chamorros and 44.1% of the Caucasians.

TABLE 51. Received First Aid Training by Gender

| Response | Gender     |             |            |             | Total        |             |
|----------|------------|-------------|------------|-------------|--------------|-------------|
|          | Males      |             | Females    |             |              |             |
|          | f          | %           | f          | %           | f            | %           |
| Yes      | 116        | 11.8        | 70         | 7.4         | 186          | 9.6         |
| No       | <u>869</u> | <u>88.2</u> | <u>873</u> | <u>92.6</u> | <u>1,742</u> | <u>90.4</u> |
| TOTAL    | 985        | 100.0       | 943        | 100.0       | 1,928        | 100.0       |

TABLE 52. Received First Aid Training by Ethnicity

| Response | Ethnicity    |             |            |             |           |             |                 |             |           |             |           |             |
|----------|--------------|-------------|------------|-------------|-----------|-------------|-----------------|-------------|-----------|-------------|-----------|-------------|
|          | Chamorro     |             | Filipino   |             | Caucasian |             | Other Islanders |             | Asian     |             | All       | Others      |
|          | f            | %           | f          | %           | f         | %           | f               | %           | f         | %           | f         | %           |
| Yes      | 107          | 9.6         | 33         | 6.1         | 30        | 44.1        | 1               | 1.7         | 2         | 5.7         | 13        | 12.0        |
| No       | <u>1,010</u> | <u>90.4</u> | <u>509</u> | <u>93.9</u> | <u>38</u> | <u>55.9</u> | <u>57</u>       | <u>98.3</u> | <u>33</u> | <u>94.3</u> | <u>95</u> | <u>88.0</u> |
| TOTAL    | 1,117        | 100.0       | 542        | 100.0       | 68        | 100.0       | 58              | 100.0       | 35        | 100.0       | 108       | 100.0       |

TABLE 53. Received First Aid Training by Age

| Response | Age          |             |            |             |            |             |            |             |            |             |
|----------|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|          | Less than 16 |             | 16-39      |             | 40-54      |             | 55-64      |             | 65+        |             |
|          | f            | %           | f          | %           | f          | %           | f          | %           | f          | %           |
| Yes      | 5            | 0.7         | 102        | 14.4        | 55         | 20.2        | 20         | 12.7        | 4          | 3.5         |
| No       | <u>670</u>   | <u>99.3</u> | <u>608</u> | <u>85.6</u> | <u>217</u> | <u>79.8</u> | <u>138</u> | <u>87.3</u> | <u>109</u> | <u>96.5</u> |
| TOTAL    | 675          | 100.0       | 710        | 100.0       | 272        | 100.0       | 158        | 100.0       | 113        | 100.0       |

The youngest and the oldest in the study group of 1,928 individuals had received the least first aid training. The highest proportion (20.2%) having received training was in the 40 to 54 age range.

#### 5.4 Cardio-Pulmonary Resuscitation (CPR) Training

These findings differed only slightly from those reported for first aid training. They differed in that the percentage with CPR training was about 2.0% less for the entire sample. There was a greater difference between the percentage rates for males and females. Eleven percent of the males had CPR experience as compared with 5.4% of the females.

TABLE 54. Received Cardio-Pulmonary Resuscitation (CPR)  
Training by Gender

| Response | Gender     |             |            |             | Total        |             |
|----------|------------|-------------|------------|-------------|--------------|-------------|
|          | Males      |             | Females    |             |              |             |
|          | f          | %           | f          | %           | f            | %           |
| Yes      | 105        | 10.7        | 51         | 5.4         | 156          | 8.1         |
| No       | <u>880</u> | <u>89.3</u> | <u>892</u> | <u>94.6</u> | <u>1,772</u> | <u>91.9</u> |
| TOTAL    | 985        | 100.0       | 943        | 100.0       | 1,928        | 100.0       |

Caucasians continued to show supporting evidence of their interest in personal safety. One-third of this group had had CPR training--much higher than any other ethnic group. The

percentages of the various age groups, if plotted, would adhere to the shape of a normal bell-shaped curve. Those 40 to 54 years old were more likely to have had CPR training, while the very youngest and oldest were least likely to be trained.

TABLE 55. Received Cardio-Pulmonary Resuscitation (CPR) Training by Ethnicity

| Response | Ethnicity    |             |            |             |           |             |                 |             |           |             |           |             |
|----------|--------------|-------------|------------|-------------|-----------|-------------|-----------------|-------------|-----------|-------------|-----------|-------------|
|          | Chamorro     |             | Filipino   |             | Caucasian |             | Other Islanders |             | Asian     |             | All       | Others      |
|          | f            | %           | f          | %           | f         | %           | f               | %           | f         | %           | f         | %           |
| Yes      | 86           | 7.7         | 33         | 6.1         | 23        | 33.8        | 2               | 3.4         | 1         | 2.9         | 11        | 10.2        |
| No       | <u>1,031</u> | <u>92.3</u> | <u>509</u> | <u>93.9</u> | <u>45</u> | <u>66.2</u> | <u>56</u>       | <u>96.6</u> | <u>34</u> | <u>97.1</u> | <u>97</u> | <u>89.8</u> |
| TOTAL    | 1,117        | 100.0       | 542        | 100.0       | 68        | 100.0       | 58              | 100.0       | 35        | 100.0       | 108       | 100.0       |

TABLE 56. Received Cardio-Pulmonary Resuscitation (CPR) Training by Age

| Response | Age          |             |            |             |            |             |            |             |            |             |
|----------|--------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|          | Less than 16 |             | 16-39      |             | 40-54      |             | 55-64      |             | 65+        |             |
|          | f            | %           | f          | %           | f          | %           | f          | %           | f          | %           |
| Yes      | 7            | 1.0         | 90         | 12.7        | 38         | 14.0        | 17         | 10.8        | 4          | 3.5         |
| No       | <u>668</u>   | <u>99.0</u> | <u>620</u> | <u>87.3</u> | <u>234</u> | <u>86.0</u> | <u>141</u> | <u>89.2</u> | <u>109</u> | <u>96.5</u> |
| TOTAL    | 675          | 100.0       | 710        | 100.0       | 272        | 100.0       | 158        | 100.0       | 113        | 100.0       |



## SECTION SIX

### SUMMARY OF FINDINGS

#### 6.1 Introduction

Interviews were conducted with 400 adults representing randomly selected households throughout the island. A total of 1,928 individuals resided in the homes. This is the fifth report--in a series of five--concerning health behavior patterns of the population on Guam. The information contained herein was derived primarily from answers given to Questions 21 through 32 of the Interview Schedule.\*

The major topics of this report cover smoking, drinking and eating life-style patterns, aspects of mental health, exercise and personal safety programs. A brief overview of each major section of this report comprises the remainder of this summary.

#### 6.2 Physical Health: Smoking, Drinking and Eating Life-Style Patterns

Slightly over one-third (35.3%) of the sample population 16 years or older were reported to be smokers. Nearly one-half of the males were smokers, while the percentage figure for females was about 24.0. As a group Filipinos were the least likely to smoke and Chamorros the most (41.5%). The 40 to 54 age group contained the highest percentage of smokers (41.2%), while the senior citizens' age group contained the least (23.0%).

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\*See Appendix C

Of those who smoked, two-thirds were males, 66.0% were Chamorro and 55.0% were in the 16 to 39 age bracket. As was to be expected, the number of years a person had smoked correlated highly with their chronological age. The range for years of active smoking extended from less than one year to 60 years. Males were found to have been smoking several years longer than females. The 17.0-years average that Filipinos had been smoking was nearly twice that of the Chamorros (9.5 years).

The amount of cigarettes smoked per day ranged from one cigarette to four packs. Males smoked only slightly more than did the females. The number was 23.6 and 21.5 cigarettes, respectively. Of all the smoking of tobacco reported, 98.2% was cigarette smoking. A few also smoked pipes or cigars. Approximately one out of three smokers said that doctors had advised them to stop smoking.

Alcohol consumption patterns were also studied in this research effort. The personal-social profile of the typical alcohol drinker was similar to that of the average smoker. Approximately one-fourth of the adults consumed at least one drink per month. They drank primarily beer; some had liquor and a small quantity of wine. With regard to gender, 40.0% of the males drank while the figure was under 10.0% for females. Of those who drank, most were males (82.0%), Chamorro (51.0%), and in the 16 to 39 years age range (56.8%). Caucasians were two to three times more likely to be drinkers than any other ethnic group. About 28.0% of the 40 to 54 age group drank, while 13.0% of those 65 or older did so. The average alcohol

consumption frequency was once or twice a week. Males drank more frequently than females and drank larger volumes of beer, in particular. Asians were two and one-half times more likely to drink during the week than anyone else. As age increased, there was no difference in drinking frequency except for the senior citizens. While others averaged a drink a week, the eldest senior citizens averaged one alcoholic drink per day. Males consumed an average of three and one-half cans of beer per sitting. This was more than one can greater than the females' average. A larger percentage of women than men were found to drink wine; however, the amount they drank at a sitting was less. Other Islanders seemed to be the "heaviest" drinkers. With regard to age, those 40 to 54 years old averaged the most cans of beer per occasion. The oldest individuals were more likely to be drinkers than any other group. However, the amount they consumed per occasion was less. Doctors had advised about 11.0% of the drinkers to break their habit. This was about one-third the number of smokers who had received similar medical advice. Around 60.0% of the drinkers admitted that they had driven after consuming alcoholic beverages. The average number of times was approximately once every 8 or 9 months. The occurrence of driving after drinking was greatest among Caucasians.

Another cultural or life-style pattern discussed was the practice of adding extra seasoning (such as salt) to one's food while eating. Nearly 60.0% of the subjects were reported to use extra sodium on their food. Asians and Chamorros were most

likely to have used such condiments. Almost 30.0% of the Caucasians said they rarely or never added extra seasoning to their food. This was three times larger than the other ethnic groups.

### 6.3 Mental Health

Three and one-half percent of all subjects complained of emotional stress. This was found to be more characteristic of females, Caucasians and those in the age 16 to 39 years range. Family problems and death or illness in one's family were primary causes. Job problems were more of a problem for males than females.

Females, Caucasians and the eldest adults were most likely to have been taking medication or drugs to help relieve themselves of their stress or to aid in relaxation.

### 6.4 Health Fitness and Exercise

To determine the health consciousness or general health fitness level of the subjects, they were asked about their leisure time physical activity. Nearly one-fourth exercised at least three times a week. No significant difference was noted between males and females with regard to the proportions of their respective group who were physically active. Caucasians tended to differ considerably in the area of health fitness. More than one-half of the Caucasians exercised regularly. Due to their being represented more extensively in the sample, Chamorros and Filipinos made up 84.0% of all individuals who exercised.

Yardwork and housework tended to be the most common forms of exercise for males and females, respectively. Ranking second for males was running/jogging and for females aerobics. The first place rating of running and jogging by the Filipinos was not anticipated. When considering their age, it was found that those under 40 years ranked jogging or running as their first type of exercise. The oldest individuals seemed to prefer yardwork and walking to stay physically and mentally well. The 460 individuals in the study who exercised regularly did so for nearly one hour per occasion. The length of time was greater for males, Caucasians, and the senior citizens.

#### 6.5 Personal Safety Programs

The extent to which the subjects in this islandwide health behavior study routinely utilized select safety measures was analyzed. Approximately one-third regularly used seat belts for safety reasons while traveling in cars. Caucasians were more than twice as likely to wear them as any other group, while Other Islanders were the least likely to do so. Little variation was noted among the various age groups or within gender.

Caucasians were also far more likely to have had first aid training than any other group. This also held true for CPR training. Males, in general, were more likely to have had first aid or CPR training than were women. Based on these findings, it appears that community informal information programs on first aid would most likely be very well attended.

As life-styles and cultural traits continue to change, the health status and behavior patterns of the people can also be

expected to be modified. This islandwide survey should, therefore, prove helpful in future years for the comparative baseline data it can provide.

## APPENDICES

APPENDIX A  
DEMOGRAPHIC TERMS, DEFINITIONS  
AND EXPLANATIONS



## DEMOGRAPHIC TERMS, DEFINITIONS AND EXPLANATIONS

The term gender and sex are used interchangeably throughout the report and refer to male and female.

Other Islanders refers to those originating from the islands, exclusive of Saipan, formerly known by their political identity as the Trust Territory of the Pacific Islands.

f is used in tables to refer to the frequency or count of individuals, etc.

% is used in the tables and text and, of course, refers to percent. Percentage totals may not equal 100.00 due to normal mathematical rounding error.

Education means number of years of formal schooling completed. Highest grade completed.

Adults occasionally is used and refers to those age 16 and older. The characteristics of income, education, and marital status are analyzed for individuals of this age category. This differs from the Federal Census which includes those age 15 and older for certain characteristics and age 16 and over for others.

Ethnicity is based on the interviewee's perception of himself and each individual member of the household. This differs from the Federal Census where all members of a household are designated the same ethnicity as the head of the household.

Age refers to a person's age at his last birthday.

Income included regular earnings for work and all other sources. The income question was dependent on one's memory and not records. Therefore, an underreporting could be expected especially in those cases involving a variety of types and sources.

Marital Status. Although civil/religious marriages and common-law marriages are treated separately in the tables, on occasion "married" is used in the text and includes both forms.

Morbidity refers to the occurrence of disease or a state of illness.

Median figures are generally reported since as a statistic they are not affected by extreme values in a distribution as are mean figures.

## Demographic Terms, Definitions and Explanations (continued)

The following formula was used in calculating medians:

$$\text{Median} = l + \left( \frac{\frac{N}{2} - f_c}{f_w} \right) h$$

$l$  = lower theoretical limit of the interval in which the median lies

$f_c$  = cumulative frequency up to the interval containing the median

$f_w$  = frequency within the interval containing the median

$N$  = total number of cases

$h$  = height of the interval

Civilian Population was established by GHPDA for this study as follows:

|                              |                |
|------------------------------|----------------|
| 1980 Census Total Population | 105,979        |
| Minus Military Population    |                |
| (living either on bases or   |                |
| in the community)            | <u>-21,000</u> |
|                              | 84,979         |

## ISLAND DISTRICTS

North:

- Dededo
- Yigo

North Central:

- Tamuning (including Tumon)
- Barrigada (including Barrigada Heights)

Central:

- Piti
- Asan/Maina
- Agana
- Agana Heights
- Sinajana
- Chalan Pago/Ordot
- Mangilao
- Mongmong/Toto/Maite

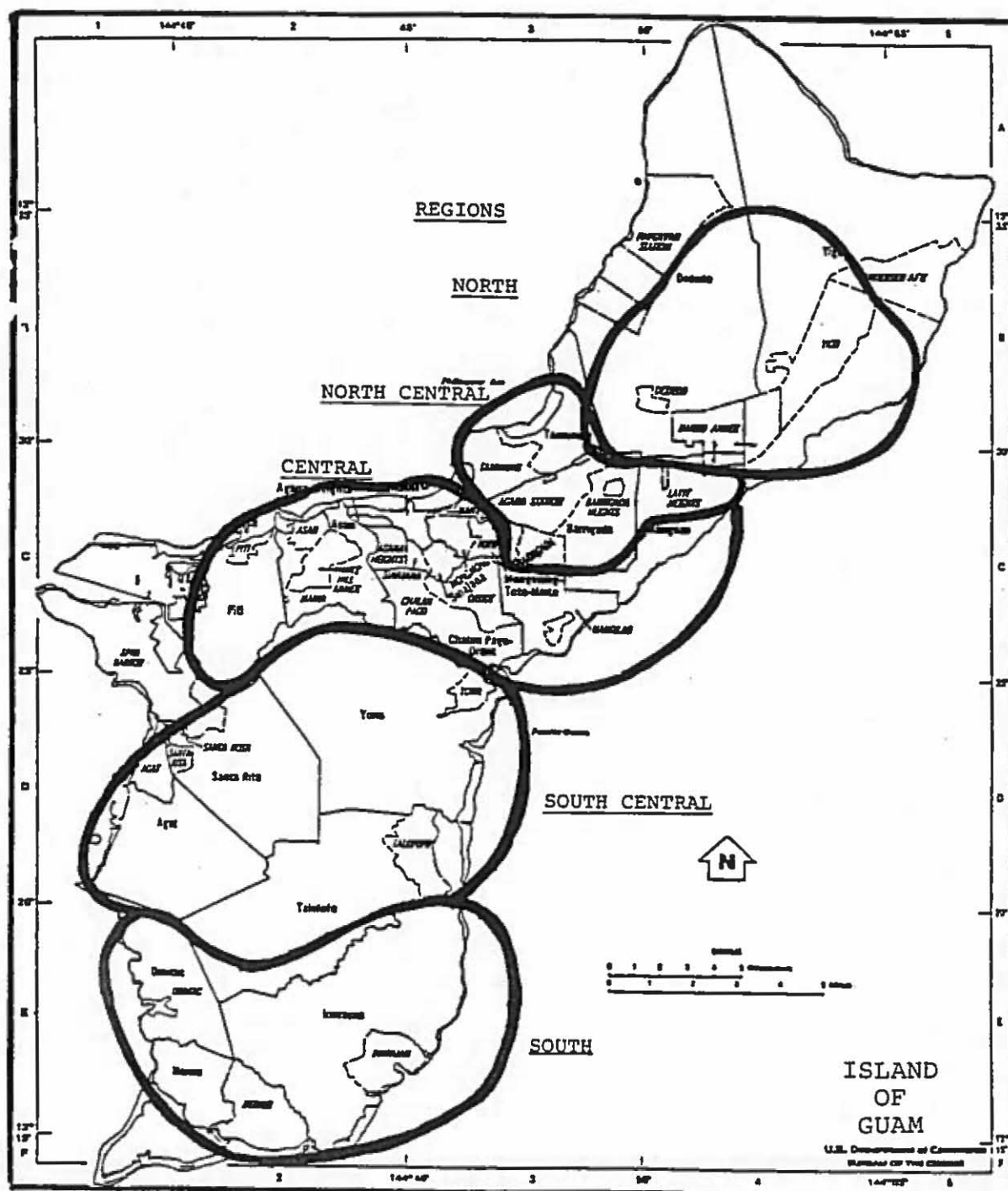
South Central:

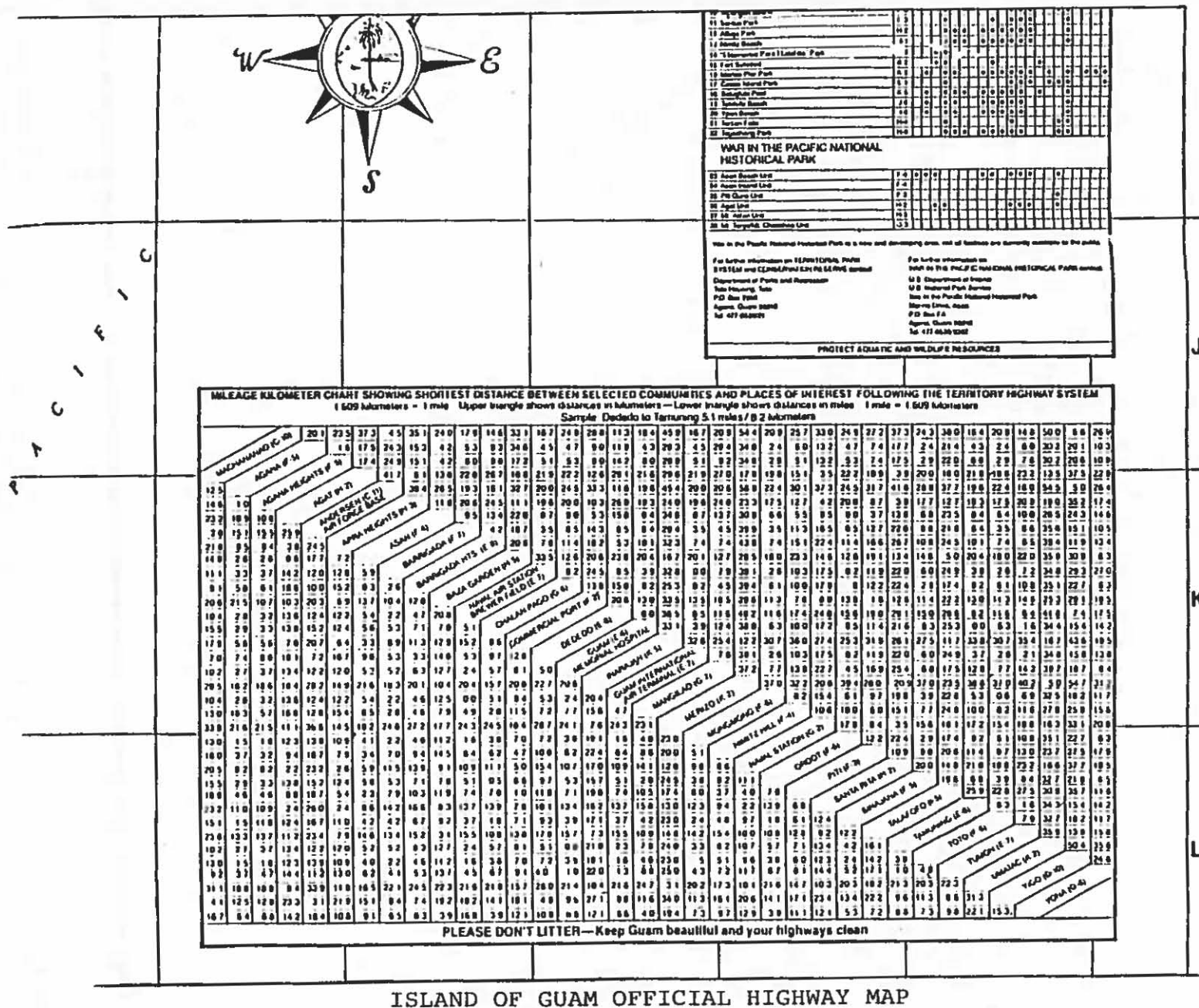
- Agat
- Santa Rita (including Santa Rosa)
- Talofofo
- Yona

South:

- Inarajan
- Merizo
- Umatac

FIGURE 3. Geographical Regions





APPENDIX B  
SAMPLE AND METHODOLOGY

## DETERMINING SAMPLE SIZE

*Using a Survey to Collect Data*  
*Using Printed Instruments*  
*Information-Collecting Techniques*  
*Guidelines to Determine Survey Use*  
*Designing the Items*  
*Planning for Item Construction*  
*Item Sequencing*  
*Designing Response Modes*  
*Modes of Response*  
*Establishing Appropriate Scales*  
*Coding Survey Items*  
*Forced-Response Codes*  
*Open-Response Codes*  
*Electronic Data Processing*  
*Conducting the Survey*  
*Sampling Considerations*  
*Communicating with the Target Population*  
*Protection of Human Subjects*  
*Inclusionary Language*  
*One Planning Technique*  
*Adapting Other Designs*  
*Other Effective Methods*  
*Analyzing the Data*  
*Descriptive Techniques*  
*Inferential Statistical Tests*  
*Implications of Analysis*  
*Writing the Research Report*  
*Planning the Report*  
*Parts of the Research Report*

# Designing Sensible Surveys

Donald C. Orlich

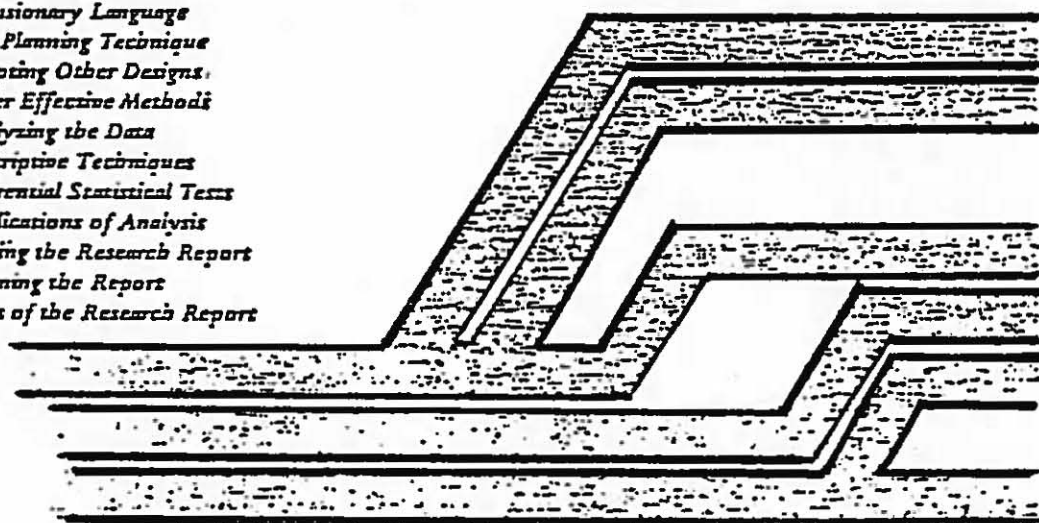


Table 5-1. Estimated Population and Sample Sizes

| Population Size | Sample Size | Population Size | Sample Size |
|-----------------|-------------|-----------------|-------------|
| 100             | 79          | 5,000           | 357         |
| 200             | 132         | 6,000           | 361         |
| 300             | 168         | 8,000           | 367         |
| 400             | 196         | 10,000          | 370         |
| 500             | 217         | 15,000          | 375         |
| 600             | 234         | 20,000          | 377         |
| 800             | 260         | 30,000          | 379         |
| 1,000           | 278         | 50,000          | 381         |
| 2,000           | 322         | 75,000          | 382         |
| 3,000           | 341         | 100,000         | 383         |

Source: The National Education Association. Table 5-1 is reproduced with the written permission of the National Education Association.

## DETERMINING SAMPLE SIZE (continued)

Suggested Sample Sizes for Selected Population Sizes  
In a Simple Random Sample

| Total<br>Number of<br>Households<br>in the<br>Population* | Number of<br>Households<br>Needed in<br>the Sample | Total<br>Number of<br>Households<br>in the<br>Population | Number of<br>Households<br>Needed in<br>the Sample |
|-----------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------|
| 100                                                       | 80                                                 | 6,000                                                    | 375                                                |
| 120                                                       | 92                                                 | 7,000                                                    | 378                                                |
| 140                                                       | 104                                                | 8,000                                                    | 381                                                |
| 160                                                       | 114                                                | 9,000                                                    | 383                                                |
| 180                                                       | 124                                                | 10,000                                                   | 385                                                |
| 200                                                       | 133                                                | More than 10,000                                         | 400                                                |
| 220                                                       | 142                                                |                                                          |                                                    |
| 240                                                       | 150                                                |                                                          |                                                    |
| 260                                                       | 158                                                |                                                          |                                                    |
| 280                                                       | 165                                                |                                                          |                                                    |
| 300                                                       | 171                                                |                                                          |                                                    |
| 320                                                       | 178                                                |                                                          |                                                    |
| 340                                                       | 184                                                |                                                          |                                                    |
| 360                                                       | 189                                                |                                                          |                                                    |
| 380                                                       | 195                                                |                                                          |                                                    |
| 400                                                       | 200                                                |                                                          |                                                    |
| 420                                                       | 205                                                |                                                          |                                                    |
| 440                                                       | 210                                                |                                                          |                                                    |
| 460                                                       | 214                                                |                                                          |                                                    |
| 480                                                       | 218                                                |                                                          |                                                    |
| 500                                                       | 222                                                |                                                          |                                                    |
| 600                                                       | 240                                                |                                                          |                                                    |
| 700                                                       | 255                                                |                                                          |                                                    |
| 800                                                       | 267                                                |                                                          |                                                    |
| 900                                                       | 277                                                |                                                          |                                                    |
| 1,000                                                     | 286                                                |                                                          |                                                    |
| 1,250                                                     | 303                                                |                                                          |                                                    |
| 1,500                                                     | 316                                                |                                                          |                                                    |
| 1,750                                                     | 326                                                |                                                          |                                                    |
| 2,000                                                     | 333                                                |                                                          |                                                    |
| 2,500                                                     | 345                                                |                                                          |                                                    |
| 3,000                                                     | 353                                                |                                                          |                                                    |
| 3,500                                                     | 359                                                |                                                          |                                                    |
| 4,000                                                     | 364                                                |                                                          |                                                    |
| 4,500                                                     | 367                                                |                                                          |                                                    |
| 5,000                                                     | 370                                                |                                                          |                                                    |

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\* Make sure that you have added together all the households (rural and town) in the population before you determine the sample size.



TABLE 57. Confidence Limits for Sample Proportions

| Sample<br>Proportion<br>% | 95 Percent          |                     | 99 Percent          |                     |
|---------------------------|---------------------|---------------------|---------------------|---------------------|
|                           | Lower<br>Limit<br>% | Upper<br>Limit<br>% | Lower<br>Limit<br>% | Upper<br>Limit<br>% |
| 5                         | 3.1                 | 7.6                 | 2.6                 | 8.5                 |
| 10                        | 7.2                 | 13.4                | 6.5                 | 14.5                |
| 15                        | 11.7                | 18.9                | 10.7                | 20.1                |
| 20                        | 16.2                | 24.3                | 15.1                | 25.6                |
| 30                        | 25.6                | 34.8                | 24.3                | 36.2                |
| 40                        | 35.2                | 45.0                | 33.7                | 46.5                |
| 50                        | 45.0                | 55.0                | 43.5                | 56.5                |
| 60                        | 55.0                | 64.8                | 53.5                | 66.3                |
| 70                        | 65.2                | 74.4                | 63.8                | 75.7                |
| 80                        | 75.7                | 83.8                | 74.4                | 84.9                |
| 85                        | 81.1                | 88.3                | 79.9                | 89.3                |
| 90                        | 86.6                | 92.8                | 85.5                | 93.5                |
| 95                        | 92.4                | 96.9                | 91.5                | 97.4                |

NOTE: Interpretation of Table 57. In this study, approximately 50% of the households surveyed were located in the North Region of the island. At the 95% level of confidence, it may be concluded that the true proportion of houses in the North would fall somewhere in the 45.0% to 55.0% range.

## DETAILED METHODOLOGY

### Sample Design

The health study sample geographically represents the entire island to accommodate islandwide ethnicity and rural-urban characteristics. The central and northern regions of the island are more developed, multi-ethnic and contain urban-like villages. The southern part of Guam, by contrast, remains more culturally homogenous with villages "rural" in character. Most medical diagnostic and treatment personnel and facilities are found in central Guam. Thus, the geographically proportionate sample reflects a representative distribution of Guam's rural-urban and ethnic-cultural composition.

To achieve such sample characteristics, a geographically stratified, two-step, proportionate random cluster sample design was adopted for the study. Permanent housing units located throughout the island (excluding those on military installations, other federal housing compounds, temporary alien labor quarters, resort hotels, and those facilities for the institutionalized) are defined as representing the civilian population.

The 1980 Guam Census Report showed 28,225 housing units of which 4,676 (16.5%) were located on land claimed by the federal government. The balance of 23,549 housing units thus represents the population from which the survey sample was drawn.

For enumeration purposes in 1980, the U.S. Department of Commerce, Bureau of the Census, considered the entire island of Guam as 19 minor civil divisions (MCD's). The MCD's (Figure 5) are election "districts" and commonly known as villages. Also in 1980, the Bureau identified as census designated places (CDP's) 34 "more highly settled" areas--including those identified as cities in 1970. The entire MCD of Agana was designated as one CDP. Three other MCD's were subdivided into two or three CDP's which, however, were inclusive of the MCD's. These MCD's were Asan/Maina, Chalan Pago/Ordot, and Mongmong/Toto/Maite. The remaining 15 MCD's all contained one or more CDP's and a residual or less densely settled area (MCD-CDP's). Table 58 shows that eight of the 34 CDP's designated in the 1980 Census were official U.S. military or other federal housing areas and, therefore, were excluded from the total sampling area. The geographical subdivisions remaining for our sample included 26 CDP's and 15 MCD's/CDP's, for a total of 41. The distribution of the agreed upon 400 housing samples is also shown in Table 58.

Although all highways, most streets and many roads are officially named, signs are absent in a number of instances. In addition, certain roads, trails and drives are without uniform identification markers, particularly on unsurveyed tracts of rural land located beyond the more densely populated village CDP's. In view of these conditions, aerial photography housing maps of the island were utilized to determine the specific sample units for the study. A total of 146 section maps were

required to cover all areas of the island that contain residential housing. Each section map contained 36 grid-block squares. The number of houses in a grid-block varied depending on its location. Grid-blocks in the CDP's were, of course, more densely populated than those in the lesser settled areas of the MCD's. The CDP grid-blocks in northern and central MCD's contained as many as 25-30 housing units, while selected residential area grids in the southern part of the island had a few or in several cases only one.

#### Sample Unit

Representative sampling among MCD's could be achieved by randomly selecting grid-blocks in proportion to the number of households located in each MCD. A more precise representation could be obtained by proportionately sampling grid-blocks within the given MCD subdivision (CDP's and MCD minus CDP's). Therefore, the Sample Unit in this study was a randomly selected grid-block.

The second level or step in the sampling procedure was purposive designation of an initial contact house (Figure 6) in each randomly selected grid-square or "housing cluster".

In order to ensure a final minimum sample size of 400 surveys, a "back-up" sampling strategy was utilized in the event where all households in the sample unit (map grid) were contacted. In such instances alternate grid-blocks were to be utilized. A systematic pattern of alternating from the immediate left of the original sample grid to the right was set in

order to maintain the proper sample representation within and among the MCD's.

The random selection of 400 map grid-blocks pinpointed starting places for systematic sampling of one-in-fifty-nine or 1.7 percent of the total study population of 23,549 households.

TABLE 58. Sample Frame: Guam

| Geographical<br>Subdivision<br>(MCD/CDP) | 1<br>Population | 2<br>Housing<br>Units | 3<br>Population/<br>Housing<br>(C1/C2) | 4<br>Housing<br>Sample<br>* |
|------------------------------------------|-----------------|-----------------------|----------------------------------------|-----------------------------|
| TOTAL                                    | (105,979)       | (28,225)              | (3.75)                                 | (400)                       |
| Agana (MCD/CDP)                          | 896             | 384                   | 2.30                                   | 7                           |
| Agana Heights (CDP)                      | 2,970           | 900                   | 3.30                                   | 15                          |
| Agana Heights (MCD/CDP)                  | 314             | 71                    | 4.40                                   | 1                           |
| Agat (CDP)                               | 2,908           | 706                   | 4.10                                   | 12                          |
| Agat (MCD/CDP)                           | 1,091           | 284                   | 3.80                                   | 5                           |
| Agan (MCD/CDP)                           | 726             | 210                   | 3.46                                   | 4                           |
| Maina (CDP)                              | 891             | 231                   | 3.86                                   | 4                           |
| Nimitz Hill Annex (CDP)                  | 417             | 148                   | 2.80                                   | NS**                        |
| Naval Air Station (CPD)                  | 1,650           | 352                   | 4.69                                   | NS                          |
| Barrigada Heights (CDP)                  | 1,127           | 260                   | 4.30                                   | 4                           |
| Barrigada (CDP)                          | 3,127           | 787                   | 3.97                                   | 13                          |
| Barrigada (MCD/CDP)                      | 1,852           | 531                   | 3.49                                   | 9                           |
| Chalan Pago (MCD/CDP)                    | 1,921           | 472                   | 4.07                                   | 8                           |
| Ordot (CDP)                              | 1,199           | 266                   | 4.50                                   | 5                           |
| Dededo (CDP)                             | 2,524           | 641                   | 3.90                                   | 11                          |
| Finegayan Station (CDP)                  | 3,538           | 874                   | 4.05                                   | NS                          |
| Dededo (MCD/CDP)                         | 17,582          | 4,019                 | 4.40                                   | 67                          |
| Inarajan (CDP)                           | 918             | 205                   | 4.48                                   | 3                           |
| Inarajan Dist. (MCD/CDP)                 | 1,141           | 250                   | 4.56                                   | 4                           |
| Mangilao (CDP)                           | 4,029           | 1,312                 | 3.07                                   | 22                          |
| Latte Heights (CDP)                      | 1,056           | 268                   | 3.90                                   | 5                           |
| Marbo Annex (CDP)                        | 856             | 253                   | 3.40                                   | NS                          |
| Mangilao (MCD/CDP)                       | 899             | 234                   | 3.80                                   | 4                           |
| Merizo (CDP)                             | 1,500           | 356                   | 4.20                                   | 6                           |
| Merizo (MCD/CDP)                         | 163             | 42                    | 3.90                                   | 1                           |
| Mongmong (MCD)                           | 2,058           | 656                   | 3.10                                   | 11                          |
| Toto (CDP)                               | 2,358           | 498                   | 4.70                                   | 8                           |
| Maite (CDP)                              | 419             | 201                   | 2.10                                   | 3                           |
| Agana Station (CDP)                      | 410             | 135                   | 3.04                                   | NS                          |
| Piti (CDP)                               | 737             | 226                   | 3.30                                   | 4                           |
| Piti (CDP/CDP)                           | 2,129           | 277                   | 7.68                                   | 5                           |
| Santa Rita (CDP)                         | 1,264           | 291                   | 4.30                                   | 5                           |
| Santa Rosa (CDP)                         | 860             | 209                   | 4.10                                   | 4                           |
| Apra Harbor (CDP)                        | 5,633           | 1,432                 | 3.90                                   | NS                          |
| Santa Rita (MCD/CDP)                     | 1,426           | 321                   | 4.40                                   | 5                           |
| Sinajana (CDP)                           | 1,879           | 464                   | 4.05                                   | 8                           |
| Sinajana (MCD/CDP)                       | 606             | 155                   | 3.90                                   | 3                           |
| Talofofo (CDP)                           | 1,470           | 291                   | 5.05                                   | 5                           |
| Talofofo (MCD/CDP)                       | 536             | 154                   | 3.50                                   | 3                           |
| Tamuning (CDP)                           | 8,862           | 3,047                 | 2.90                                   | 52                          |

(cont.)

TABLE 58. Continued

| Geographical<br>Subdivision<br>(MCD/CDP) | 1<br>Population | 2<br>Housing<br>Units | 3<br>Population/<br>Housing<br>(C1/C2) | 4<br>Housing<br>Sample<br>* |
|------------------------------------------|-----------------|-----------------------|----------------------------------------|-----------------------------|
| TOTAL                                    | (105,979)       | (28,225)              | (3.75)                                 | (400)                       |
| Tamuning (MCD/CDP)                       | 4,718           | 1,741                 | 2.70                                   | 29                          |
| Umatac (CDP)                             | 487             | 96                    | 5.07                                   | 2                           |
| Umatac (MCD/CDP)                         | 245             | 51                    | 4.80                                   | 1                           |
| Yigo (CDP)                               | 3,392           | 964                   | 3.50                                   | 16                          |
| Marbo Annex (CDP)                        | 184             | 86                    | 2.10                                   | NS                          |
| Andersen AFB (CDP)                       | 4,892           | 1,396                 | 3.50                                   | NS                          |
| Ligo (MCD/CDP)                           | 1,891           | 452                   | 4.20                                   | 8                           |
| Yona (CDP)                               | 1,948           | 394                   | 4.90                                   | 7                           |
| Yona (MCD/CDP)                           | 2,280           | 632                   | 3.60                                   | 11                          |

\*.0169858 X 23,549 households = 400 sample residences.

\*\*NS = not sampled federal housing such as military bases.

Sources: U.S. Bureau of the Census. US Census of the Population: 1980. Vol.1, Characteristics of the Population, Part 54, Guam, PC80-1-A54 Chapter A, Number of Inhabitants. US Government Printing Office, Washington, DC, 1982.

Guam Department of Commerce, 1982. Preliminary Population and Housing Counts by Subdivision, Guam 1980 Census. Unpublished Data Sheet.





FIGURE 6. Sample Unit: Grid-Block Cluster of Households

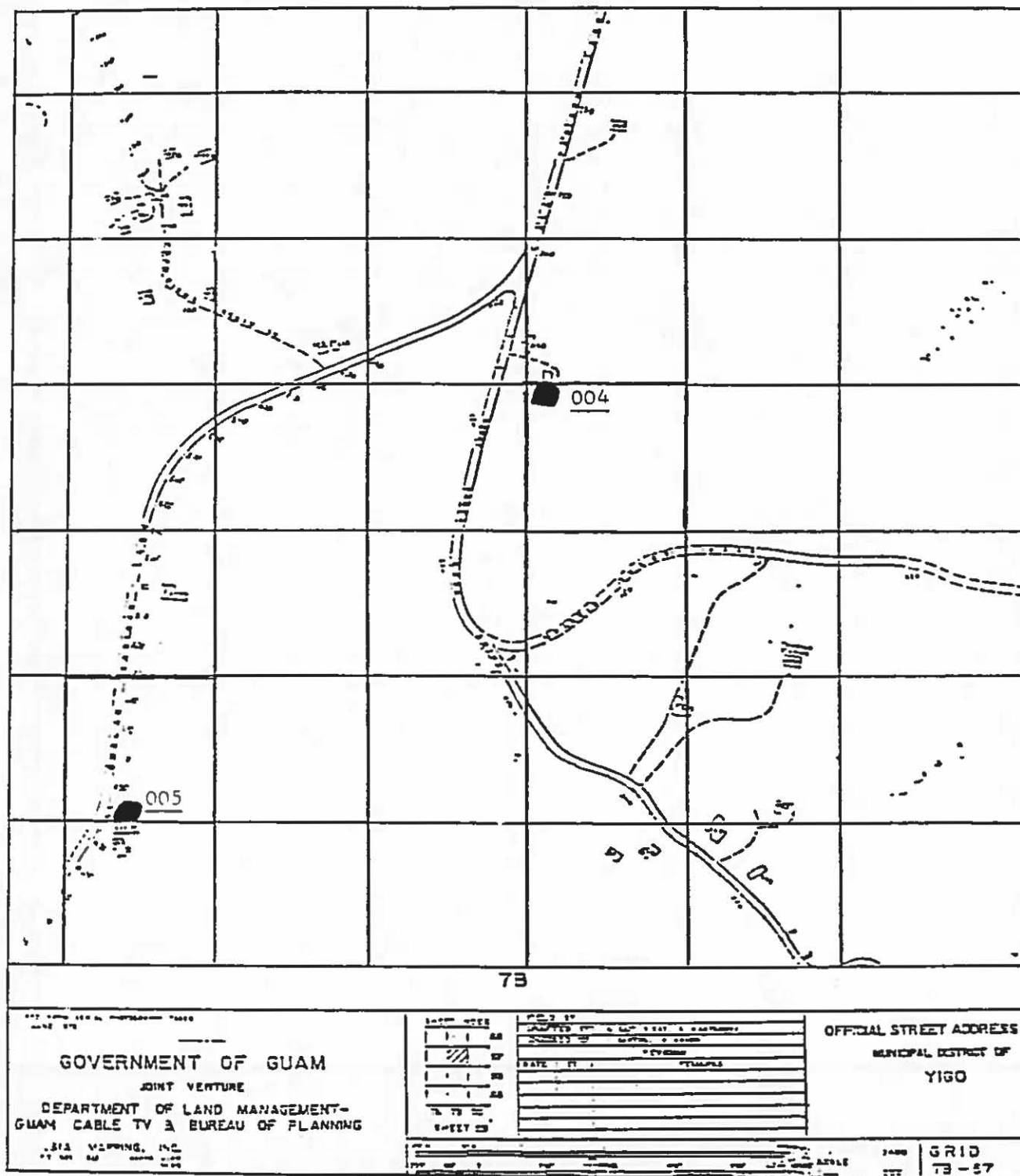
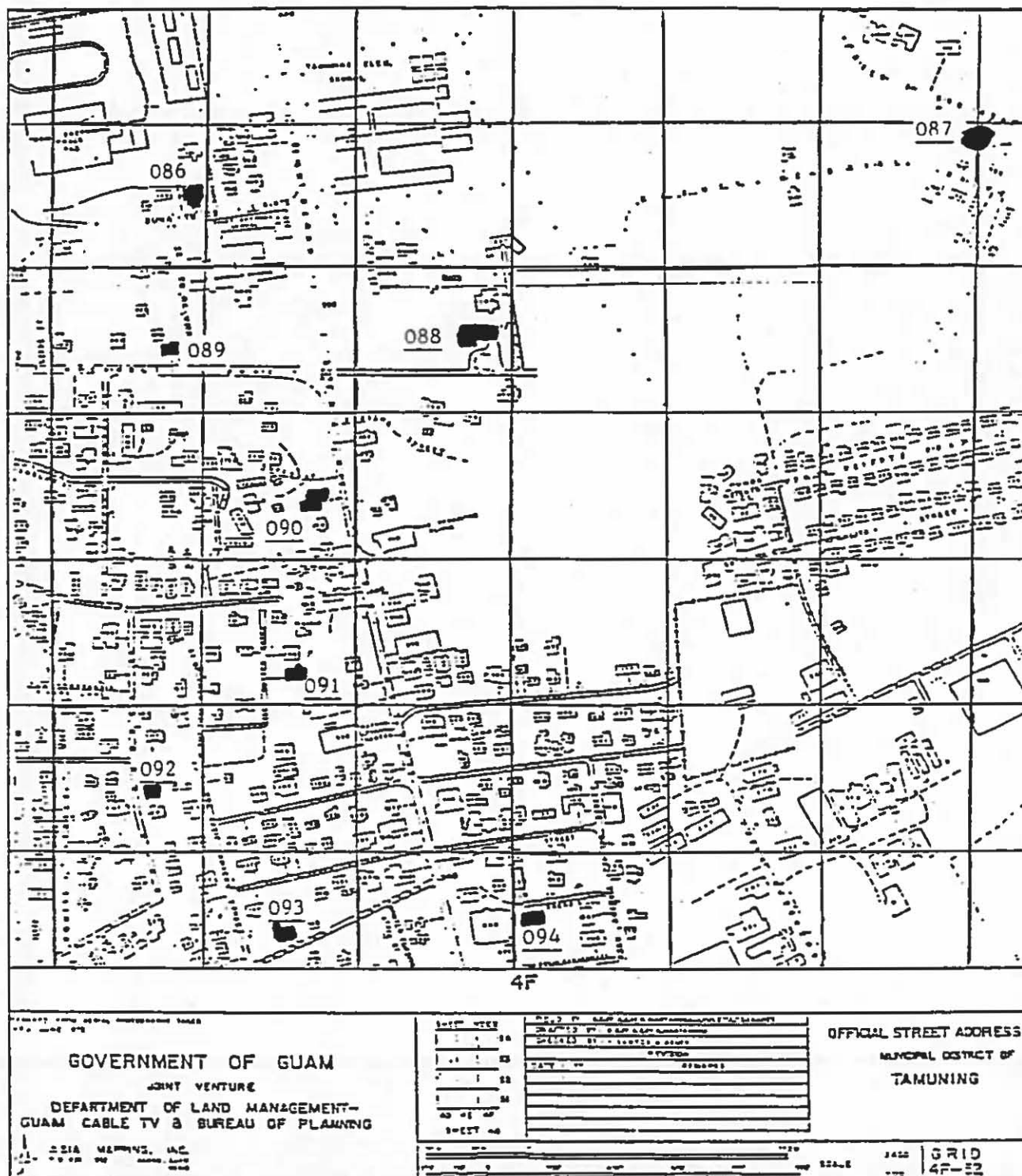


FIGURE 6. Sample Unit: Grid-Block Cluster of Households (continued)





HEALTH STATUS OF THE POPULATION OF GUAM SURVEY  
November 8, 1984

Interviewer's Narrative Report and Coder's Comments:

| SUBJECT NO.              | COMMENT/SPECIFY                                                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17801                    | Had to retire because of his heart disease (originally had 365 days at home in bed last 12 months); Q45 covered by military and medicare (doesn't use the medicare), coded 12-Military.                          |
| 38102                    | Subject is diabetic and so she eats once an hour (about 13 "snacks" per day).<br>Figured: 24 hours/day<br>- 8 hours sleep<br>16 hours<br>- 3 hours/3 meals<br>13<br>Coded Q25 as 8 (Maximum number for 1 column. |
| 17302                    | Covered by BC/BS, FHP and Metropolitan.<br>Coded 06 BC/BS for Q45a.                                                                                                                                              |
| 17304                    | Same as the above.                                                                                                                                                                                               |
| 374 (all)                | Household of six with #1 category income, no public assistance, and some with BC/BS insurance. The head of the household (husband) just died and apparently was the family's wage earner.                        |
| 38910/12                 | Q9. Both subjects while they were in to see doctor about their colds, the doctor gave them their "baby shots" (measles, mumps, rubella, etc.).                                                                   |
| 37402/05                 | Q8 shows HMSA insurance, Q45 shows no insurance. At the time she had the baby in Q8, she was living and working in Hawaii and was covered by HMSA. Currently lives in Guam, no insurance.                        |
| 37003/06 and<br>37005/06 | Q20, uses FHP but Q45, no insurance.<br>Q8 and Q12, one doctor delivered, another doctor for prenatal visits. Q14 has FHP insurance but went to Dr. Labalan.                                                     |

SUBJECT NO.COMMENTS/SPECIFY

Verifier (Mary Vacher) asked interviewer if she knew more about the above or why. Interviewer remembered that those were the answers and couldn't add any more.

25701/03 Q2d/e/f. Coded 9's because these two people never went to school.

39002 Q2d/e. Coded 9's because he went to Brodie Memorial and they "don't have grades." He is not attending at the present.

Subject was referred to as a "slow learner" and "disabled." He went to Brodie Memorial. He puts in 8 hours a day doing housework. (Interviewer has not coded him in Q7. Subject looked retarded to the interviewer. Interviewer also got the impression subject is not allowed to drive or to learn to drive. Subject doesn't drive.)

39001/01/03/04 FHP and Medicaid (coded 01-FHP in Q45)

31302/03/04 Q48c. Coded as "9" because all part of a family business. The joint family income is coded "8" with person #01 the father.

39203 Q2g. Suggested "mongolian" be added. This is the real origin of the Chamorro people.

HEALTH STATUS OF THE POPULATION OF GUAM  
RUN LIST

| <u>SUBJECT NO.</u> | <u>RECORD CODE</u> | <u>COMMENT/SPECIFY</u> |
|--------------------|--------------------|------------------------|
|--------------------|--------------------|------------------------|

Q2. Relationship to head of the household:

|       |          |                                                                                                                  |
|-------|----------|------------------------------------------------------------------------------------------------------------------|
| 39904 | 25-Other | Respondent gave S39904 as his son-in-law and single. (When asked about it, #04 is single and like a son-in-law). |
|-------|----------|------------------------------------------------------------------------------------------------------------------|

Q2d. Ref. 66 years and older--Marital Status:

|       |                |                                                           |
|-------|----------------|-----------------------------------------------------------|
| 40001 | 12-High School | Graduated from high school and had 4 years as apprentice. |
|-------|----------------|-----------------------------------------------------------|

Q2f. Place in which attended highest grade they finish:

|       |          |         |
|-------|----------|---------|
| 05902 | 29-Other | Samoa   |
| 06702 | 29-Other | Germany |
| 06703 | 29-Other | Germany |
| 28301 | 29-Other | Africa  |
| 39502 | 29-Other | Sweden  |

Q2g. Ethnic group:

|       |                 |                       |
|-------|-----------------|-----------------------|
| 05106 | 10-T.T.         | Rotanese              |
| 20302 | 10-T.T.         | Trukese               |
| 20303 | 10-T.T.         | Trukese               |
| 20304 | 10-T.T.         | Trukese               |
| 20305 | 10-T.T.         | Trukese               |
| 17401 | 10-T.T.         | Palauan               |
| 17402 | 10-T.T.         | Palauan               |
| 17403 | 10-T.T.         | Palauan               |
| 28301 | 12-Other/Single | African               |
| 37502 | 12-Other/Single | Mexican               |
| 37503 | 14-Other/Comb.  | Mexican/Chamorro      |
| 06702 | 12-Other/Single | German                |
| 06703 | 12-"            | German                |
| 06704 | 14-Other/Comb.  | German/Black          |
| 06706 | 14-"            | German/Filipino/Black |

(cont.)

| <u>SUBJECT NO.</u> | <u>RECORD CODE</u> | <u>COMMENT/SPECIFY</u>     |
|--------------------|--------------------|----------------------------|
| 05902              |                    |                            |
| 05903              | 14-Other/Comb.     | Chamorro/Samoan            |
| 05904              | 14- "              | Chamorro/Samoan            |
| 05905              | 14- "              | Chamorro/Samoan            |
| 05906              | 14- "              | Chamorro/Samoan            |
| 05907              | 14- "              | Chamorro/Samoan            |
| 05908              | 14- "              | Chamorro/Samoan            |
| 17803              | 14-Other/Comb.     | Caucasian/Palauan          |
| 38701              | 14-Other/Comb.     | Japanese/Chamorro          |
| 39303              | 14-Other/Comb.     | Caucasian/Chamorro         |
| 39304              | 14- "              | Caucasian/Chamorro         |
| 17503              | 14-Other/Comb.     | Caucasian/Chamorro         |
| 17504              | 14- "              | Caucasian/Chamorro         |
| 17303              | 14-Other/Comb.     | Yapese/Hawaiian            |
| 17304              | 14- "              | Yapese/Hawaiian/Chamorro   |
| 19103              | 14-Other/Comb.     | Chamorro/Japanese          |
| 19104              | 14- "              | Chamorro/Japanese          |
| 19105              | 14- "              | Chamorro/Japanese          |
| 19106              | 14- "              | Chamorro/Japanese          |
| 19107              | 14- "              | Chamorro/Japanese          |
| 39503              | 14-Other/Comb.     | Chamorro/Caucasian         |
| 39504              | 14- "              | Chamorro/Caucasian         |
| 38914              | 14-Other/Comb.     | Chamorro/Japanese/Hawaiian |
| 38915              | 14- "              | Chamorro/Japanese/Hawaiian |
| 19503              | 14-Other/Comb.     | Caucasian/Filipino         |
| 18003              | 14-Other/Comb.     | Chamorro/Caucasian         |
| 18004              | 14- "              | Chamorro/Caucasian         |
| 18005              | 14- "              | Chamorro/Caucasian         |
| 06002              | 14-Other/Comb.     | Chamorro/Canadian          |
| 06003              | 14- "              | Chamorro/Canadian          |
| 06004              | 14- "              | Chamorro/Canadian          |
| 06005              | 14- "              | Chamorro/Canadian          |
| 08803              | 14-Other/Comb.     | Filipino/Caucasian         |
| 08804              | 14- "              | Filipino/Caucasian         |
| 08805              | 14- "              | Filipino/Caucasian         |
| 27701              | 14-Other/Comb.     | Filipino/Japanese          |
| (cont.)            |                    |                            |

| <u>SUBJECT NO.</u> | <u>RECORD CODE</u> | <u>COMMENT/SPECIFY</u> |
|--------------------|--------------------|------------------------|
| 26403              | 14-Other/Comb.     | Filipino/Italian       |
| 26404              | 14- "              | Chamorro/French        |

## Q22a. Exercise habits:

|       |          |                  |
|-------|----------|------------------|
| 06001 | 20-Other | Snorkeling       |
| 06002 | 20-Other | Snorkeling       |
| 40003 | 20-Other | Tahitian dancing |

## Q23c. Usual social situations for alcohol consumption habits:

|       |                        |                                                           |
|-------|------------------------|-----------------------------------------------------------|
| 28701 | 3-Coded<br>(Not Coded) | Fiesta or party.<br>(2-small group of friends or family.) |
|-------|------------------------|-----------------------------------------------------------|



## CODING, DATA ENTRY AND ANALYSIS

Computerization of Data  
(June 22, 1984)

1. A technical complication developed in the planned procedures to key data in through the UOG Computer Center's Interactive Computing and Control Facility (ICCF). The size of data file members that can be utilized by the ICCF is very limited (5000 record lines). Miscommunication with the Computer Center led CDI staff to plan for only two (2) data file members that would contain the entire data set. However, because the data set is extremely large (approximately 36,632 record lines), the data files that had been keyed in were already too large. This required creation of an additional service of programming operations to rectify.
2. Working with Rudy Villagomez, Programmer Analyst at the UOG Computer Center, procedures were developed to: (a) divide the large ICCF data files into smaller usable segments; (b) these segments can be resorted as originally planned from the order pattern of keypunching (all household members for each data record line before entering of the next data record line) to the order pattern necessary for data analyses (all data record lines for each person and subsequent persons); (c) the resorted segments are then placed out on DISC storage, which permits the use of a SAS program to read, MERGE (a SAS Proc), and output all segments as a simple SAS Data set on a permanent computer TAPE file.
3. Data analyses will be processed using SAS software programs reading (input) the data from this tape.

## GHPDA-UOG INTERAGENCY AGREEMENT W32100001

## HEALTH BEHAVIOR PATTERNS SURVEY

Report 01

December 15, 1983

1. Due to the implementation of a new accounting system by the Government of Guam, effective with the beginning of FY'84, a financial account for this project was not established until mid-November 1983. This technically delayed the project start-up date by six weeks. This delay is considered to have been beyond the control of both agencies (GHPDA and UOG).
2. Telephone contact between GHPDA and UOG has been maintained and informal status reports given. Cooperation has been very good.
- 3a. Research Sample Design. Completed. Copy to be presented to GHPDA along with other requirements of Phase II (Second Installment).
- 3b. Drawing of Sample Units. Completed. Copy of islandwide sample distribution to be presented to GHPDA along with other requirements of Phase II (Second Installment).
- 3c. Survey Instrument, initial draft copy attached and ready for submission to GHPDA during first sit down reporting meeting scheduled for Wednesday, December 21, 1983. Recommend that the first joint follow-up work session on survey instrument development be held one week later on Wednesday, December 28, 1983.
4. The project design calls for field interviews to begin in January, 1984. Schedule calls for the interviews are to begin during the second weekend of January.

APPENDIX C  
INTERVIEW SCHEDULE  
(QUESTIONNAIRE)

HEALTH SURVEY  
VARIABLE DEFINITIONS FOR ANSWERS TO SURVEY

I. TITLE: Demographic variables

- I2A - Ages of all members of household
- I2B - Sex of all individuals of each household
- I2D - Highest grade attended in school
- I2E - Was this grade completed?
- I2F - Country or Island where this grade was finished
- I2G - Ethnic group
- I45 - Any health insurance?
- I45A - Who is insured and which insurance plan?
- I47A - Do you receive welfare (OAA, AB, APTD)?
- I47B - Food stamps?
- I47C - Medicaid?
- I47D - GHURA Housing Assistance/Low income family housing subsidy?
- I47E - Other, specify: \_\_\_\_\_

II. TITLE: Health Conditions

- I7A1-I7A3 - During the past 12 months (not including the last 2 weeks) has anyone in this household had any of the following health problems?  
If yes, who, and what are the conditions?
- I3C - During the last 2 weeks, for what condition was the person in the hospital?
- I4B - During the last 2 weeks, what was the primary causal illness or injury that kept the person in bed?
- I5B - During the last 2 weeks, what was the primary causal illness or injury that the person had?
- I8C - During the past 12 months, for what illness or injury was the person hospitalized?

III. TITLE: DRS and sources of care:

- I3F - Name of doctor of the person in the hospital for last 2 weeks
- I4F - Name of doctor of the person in bed at home for sickness for the last 2 weeks
- I5F - Name of the doctor of the person restricted from activities fro the last 2 weeks
- I6A - The name of the doctor who was visited.
- I50A - Which doctor did this person visit? (with regards to diagnosis and treatment over the past 2 weeks)

Health Survey  
Variable Definitions for answers to survey  
Page 2

III. TITLE: DRS and sources of care (con't)

- I50C - Did the person visit another doctor at another location? (with regards to diagnosis and treatment over the past 2 weeks)
- I8D - Name of the doctor of the person who was in the hospital for the past 12 months
- I9C - Name of any other doctor this person may have visited
- I12A - Who was the doctor visited for immunization, x-rays, or advise?
- I12D - Did the person visit another doctor at another location?

IV. TITLE: Dental visits

- I14A - Who went to see the dentist? Who was the dentist?
- I14D - Did this person visit another dentist at another location?
- I14B1-I14B3 - What were the reasons for the dental visit?
- I14I - By which insurance is this person covered for dental visits?

V. TITLE: Good health doctor visits reasons

- I6C - What was the reason for the visit to a doctor when under good health?
- I12C1-I12C3 - What was the reason for the visits to a doctor with no injury at the time and in good health?

VI. TITLE: Hospital stays

- I3B - How many days during the last 2 weeks was the person in the hospital?
- I8B - How many days during the past 12 months was the person in the hospital?

VII. TITLE: Work days missed

- I4L - During the last 2 weeks, how many days did illness or injury keep the person from going to work for which pay is received?
- I5 - During the last 2 weeks, how many days did illness or injury (with regards to restricted activities) keep the person from going to work for which pay is received? (Record # of days or "99" for N/A)

Health Survey  
Variable Definitions for answers to survey  
Page 3

VII. TITLE: Work days missed (con't)

- I10B - Of the total # of days in bed at home, how many days did illness or injury (with regards to being in bed at home for the last 12 months) keep the person from going to work for which pay is received? (Record # of days or "99" for N/A)
- I11B - How many days did illness or injury (with regards to restricted activities over the past 12 months) keep the person from going to work for which pay is received? (Record the # of days)

VIII. TITLE: School days missed

- I4M - During the last 2 weeks, how many days did illness or injury (with regards to being in bed at home over the past 2 weeks) keep the person from going to school? (record # of days, or "99" for N/A)
- I5J - During the last 2 weeks, how many days did this illness or injury (with regards to restricted activities over the past 2 weeks) keep the person from going to school? (record # of days or "99" for N/A)
- I10C - Of the total # of days in bed at home over the past 12 months, just mentioned, how many days did illness or injury keep the person from going to school? (record # of days)
- I11C - Of the total # of days of the restricted activities over the past 12 months just mentioned, how many days did illness or injury keep the person from going to school? (record # of days)

IX. TITLE: Individual 12 month income

- I48C - During the past 12 months, approximately what was the person's income before taxes?

X. TITLE: Recognition & retention of condition

- I3D - When did the person first notice or get this condition which required a hospital stay over the past 2 weeks?
- I3E - Does the person still have this condition at this time?
- I4C - When did the person first notice or get this condition which required to be in bed at home over the last 2 weeks?
- I4D - Does the person still have this condition at this time?
- I5C - When did the person first notice or get this condition with regards to restricted activities over the last 2 weeks?
- I5D - Does the person still have this condition at this time?

Health Survey  
Variable Definitions for answers to survey  
Page 4

XI. TITLE: Hospital payments

- I3L - How was this hospitalization paid for (with regards to the last 2 weeks)?
- I8E - How was this hospitalization paid for (with regards to the past 12 months)?

XII. TITLE: yes/no answers

- I3 - During the last 2 weeks, did any member of this household stay in a hospital because of illness or injury?
- I4 - During the last 2 weeks, did any member of this household stay in bed at home because of illness or injury?
- I4E - Was a doctor consulted, either by visit or phone during the last 2 weeks for the person's condition?
- I5 - During the last 2 weeks did any member of this household cut down or restrict their usual activities for any given length of time because of illness or injury?
- I5E - Was a doctor consulted either by a visit or phone during the last 2 weeks for the person's condition?
- I6 - Not counting the visits to a doctor by the person's mentioned above, during the last 2 weeks did anyone in this household who was in good health and no injury at the time visit a doctor for immunization, x-rays, exams, tests, etc?
- I6D - Did the person get medical advice over the telephone during this same period?
- I50 - During the past 2 weeks, did anyone in this household visit a doctor for the diagnosis and treatment of an illness or injury?
- I7 - During the past 12 months has anyone in this household had any of the following health conditions?
- I8 - During the past 12 months did anyone in this household stay in a hospital because of illness or injury?
- I9 - During the past 12 months did anyone in this household visit a doctor for the diagnosis and treatment of an illness or injury?
- I10 - During the past 12 months, did anyone in this household stay in bed at home because of illness or injury?
- I11 - During the past 12 months, did anyone in this household cut down or restrict their usual activity for any given length of time because of illness or injury?
- I12 - Not counting the visits to a doctor by the person(s) mentioned, during the past 12 months, did anyone in this household who was in good health and with no injury at the time visit a doctor for immunization, x-rays, or advice?

Health Survey  
Variable Definitions for answers to survey  
Page 5

XII. TITLE: yes/no answers (con't)

- I13 - During the past 12 months, did anyone in this household with a long-time impairment or disability visit a health facility for therapy, habilitation or rehabilitation?
- I14 - During the past 12 months, did anyone in the household visit a dentist for any reason?
- I14H - Is the person covered by dental insurance? (with regards to dental visits over the past 12 months)
- I16 - During the past 12 months was there any time that a household member needed to see a doctor but for some reason did not?
- I19 - During the past 12 months has any member of this household ever decided not to go to a doctor or health facility on Guam because transportation was not readily available?
- I20 - Does any member of this household have a regular doctor?
- I28 - Does any member of this household usually wear a seatbelt when driving or riding as a passenger in a car?
- I29 - Does anyone in this household ever use medication or drugs which affects their mood or helps them relax?
- I30 - In the last 2 weeks, has any member of this household been greatly upset, troubled, or depressed for more than a few days due to problems in the family, divorce, separation, illness, death in the immediate family, preassure associated with work or school, loss of a job, or financial concerns?
- I30B - Was the person unable to do his/her usual work or daily activities because of this problem?
- I21 - Is there any member of this household who regularly smokes tobacco now?
- I21D - Has this person ever been advised by a doctor to stop smoking?
- I22 - Does any member of this household exercise at least 3 times per week?
- I22C - Does this person usually sweat during and/or after exercising?
- I23 - Does any member of this household usually drink alcoholic beverages, such as beer, wine, or mixed drinks?
- I23E - Has a physician ever advised this person that drinking alcohol is injurious to their health?
- I23F - Has this person ever tried to stop drinking alcohol?



House Number: \_\_\_\_\_  
Questionnaire I.D. # \_\_\_\_\_  
Interviewer's Number: \_\_\_\_\_  
Village Area: \_\_\_\_\_  
Date: \_\_\_\_\_  
Coder's Name: \_\_\_\_\_

A SURVEY TO DETERMINE THE HEALTH STATUS  
OF THE POPULATION OF GUAM

ADMINISTERED BY THE  
COMMUNITY DEVELOPMENT INSTITUTE  
COLLEGE OF AGRICULTURE AND LIFE SCIENCES  
COOPERATIVE EXTENSION SERVICES  
UNIVERSITY OF GUAM

for

GUAM HEALTH PLANNING AND DEVELOPMENT AGENCY  
GOVERNMENT OF GUAM

FUNDED IN PARTS  
GHPDA - DHSS MONEY

**NARRATIVE REPORT AND  
INTERVIEWER'S ASSESSMENT  
SHEET**

|                  |   |            |   |                |  |
|------------------|---|------------|---|----------------|--|
|                  |   |            |   | (2-4)          |  |
| House Code       |   |            |   |                |  |
| Person (5-6)     |   | Card (7-8) |   | Village (9-10) |  |
| 0                | 0 | 1          | 0 |                |  |
|                  |   |            |   | (11-12)        |  |
| Interviewer Code |   |            |   |                |  |

(NOTE: To be completed by interviewer after the Interview has been conducted, and all questions are answered. Complete this page in your home or our office.)

Interview Completed during visit number      1      2      3      4

Narrative Report: (Include comments on accuracy of responses, interviewer interference, etc.)

Comments or Problems that you encountered that you feel would be helpful to us.

Concerning the interview on the whole:

1. Satisfactory \_\_\_\_\_
2. Unsatisfactory (explain) \_\_\_\_\_
3. Refused (explain) \_\_\_\_\_
4. Not Available (explain) \_\_\_\_\_
5. Other (explain) \_\_\_\_\_

☐

Length of Interview \_\_\_\_\_  
(Hours:Minutes)

\_\_\_\_\_  
INTERVIEWER SIGNATURE

\_\_\_\_\_  
DATE

Household Interview Number  
(Pre-Assigned)

House  
(2-4)

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

Time Interview Began \_\_\_\_\_

Person  
(5-6)

Card  
(7-8)

Village  
(9-10)

Card Identification

|   |   |   |   |  |  |
|---|---|---|---|--|--|
| 0 | 0 | 1 | 1 |  |  |
|---|---|---|---|--|--|

Village Address \_\_\_\_\_  
(House number and street)

Interviewer (24-25)

|  |  |
|--|--|
|  |  |
|--|--|

\_\_\_\_\_  
(village)

(26-27)

|  |  |
|--|--|
|  |  |
|--|--|

Type of Dwelling Place: (See Card Y for code)

Map of House Location

|                                              |
|----------------------------------------------|
| (If more space is needed, use back of sheet) |
|----------------------------------------------|

**NOTE:** Interview must be an adult member of the household.  
(Preference: Head of Household or Spouse)

Month  
(28-29)

Day  
(30-31)

Year  
(32-33)

Date:

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

How many persons have lived in or moved to this household since February 1, 1983? (Identify Individuals who regularly eat and sleep in this household. Do not include individuals off-island attending school, family in military stations off-island).

(34) (35)

|  |  |
|--|--|
|  |  |
|--|--|

Are any of these temporarily living in this household? Code actual number (col. 23-24).

(36) (37)

|  |  |
|--|--|
|  |  |
|--|--|

WHAT IS YOUR NAME, PLEASE?

(38) (39)

Name of Respondents (contact persons)

|  |  |
|--|--|
|  |  |
|--|--|

In case we need to get in touch with you for clarification of your questionnaire, we would like your mailing address and a phone number.

Mailing Address:

|  |
|--|
|  |
|  |
|  |

Phone Number:

Home:

|  |
|--|
|  |
|--|

Work:

|  |
|--|
|  |
|--|

Other:

|  |
|--|
|  |
|--|

### HOUSEHOLD INFORMATION

1. To begin with we would like you to tell us the first names of all the members of this household who usually live, eat, and sleep here. Begin with the head of the household listing all adults, children, and infants.
2. What is the relationship of all others to \_\_\_\_ (head of household)? (See CARD A for code)
  - (a) What are the ages of all members of this household? (Record actual age after last birthday)
  - (b) Their Sex?  
Record (1) = Male  
(2) = Female
  - (c) For those 16 years and older, what is their marital status at the present time? (Show CARD B to Respondent)  
Record (1) = single (never married)  
(2) = married only once  
(3) = married more than once  
(4) = common-law  
(5) = widowed  
(6) = separated  
(7) = divorced
  - (d) For those 16 years and older, what is the highest grade \_\_\_\_ attended in school? (See CARD C for code)
  - (e) Did they finish that grade?  
Record (1) = Yes  
(2) = No (Skip to Question 2(g))
  - (f) (If Yes to 2(e)) Where did they finish that grade?  
Record \_\_\_\_ (See CARD D for code)  
Country or Island
  - (g) What ethnic group does each member of this household identify with? (CARD D, Ethnicity)

[illegible]

★★ FORMERLY CARD 12 ★★

Record (01) - Black (08) - Korean  
(02) - Caucasian (09) - Saipanese  
(03) - Chamorro (10) - T.T. Islander  
(04) - Chinese Specify: \_\_\_\_\_  
(05) - Filipino Island Group  
(06) - Indian (11) - Vietnamese  
(07) - Japanese (12) - Other (Specify: \_\_\_\_\_)

**PROBE:** Are there any persons who usually lived, ate, and slept here during the past year but are now away for some reason. If YES, what is this person's name? Then ask Question 2 through 2(g). If NO, turn page and continue with Question 3.

- (2) = No (Skip to Question 22)

- (5) - Other (Specify: )

- Record number of years

- Record number of each

- (2) - No

- (2) = No (Skip to Question 23)

- a regular basis? (CARD M, Exercise List)

- (4) = more than 1 hour

### SMOKING HABITS

### EXERCISE HABITS

- (2) = No

## ALCOHOL CONSUMPTION HABITS

23. Does any member of this household usually drink alcoholic beverages, such as beer, wine, or mixed drinks?  
Record (1) = Yes (If one drink per month or more)  
(2) = No (If a non-drinker or if drinks only occasionally, skip to Question 24)

- (a) If YES, who is this and HOW OFTEN does \_\_\_\_\_  
 drink (how many times)?  
 Record (1) = 1/month  
 (2) = 2-3/month  
 (3) = 1/week  
 (4) = 2-3/week  
 (5) = 4-6/week  
 (6) = 1/day  
 (7) = 2-3/day  
 (8) = greater than 3/day

- (b) How Many  
(i) beers (12 ounces cans or bottles)  
(ii) jiggers of liquor (1 ounce)  
(iii) glasses of wine (6 ounces)  
does \_\_\_\_\_ usually drink at one occasion  
Record numbers of each  
(0) = none

- (c) In what social situations does \_\_\_\_\_ usually drink alcoholic beverages?
- Record (1) - alone
- (2) - small group of friends or family
- (3) - at a fiesta or party
- (4) - Other (Specify: \_\_\_\_\_)

- (d) What time of day does \_\_\_\_\_ usually drink?  
 Record (1) = morning  
 (2) = afternoon  
 (3) = evening  
 (4) = all day long  
 (5) = Other (Specify: \_\_\_\_\_)

- (e) Has a physician ever advised \_\_\_\_\_ that drinking alcohol is injurious to their health?  
Record (1) - Yes  
(2) - No

[illegible]

- (f) Has \_\_\_\_\_ ever tried to stop drinking alcohol?  
Record (1) - Yes  
(2) - No (Skip to Question 23(h))

- (g) How many times has \_\_\_\_\_ tried to stop drinking alcohol?  
Record number of times

- (h) During the past 12 months, how many times would you say \_\_\_\_\_ has driven a vehicle after consuming an alcoholic beverage?
- Record (1) = 0 times  
(2) = 1-3 times  
(3) = 4-6 times  
(4) = 7-10 times  
(5) = 11 or more times

## EATING HABITS

24. How many meals does \_\_\_\_\_ usually eat per day?  
Record number of meals

(a) If less than three meals/day which meal does \_\_\_\_\_ usually skip?

Record (1) = breakfast

(2) = lunch

(3) - dinner

(4) = Other (Specify: \_\_\_\_\_)

- (b) If there is a second meal missed, which is it?  
(SAME CODE).

(SAME CODE).

If there is NO second meal missed, record 9 and continue.

25. How often per day does \_\_\_\_\_ usually eat in between meals?

Record number of times

26. How many times a week does \_\_\_\_\_ eat a meal away from home?

Record (0) = seldom, never

(1) - 1 to 3 times

(2) - 4 to 6 times

(3) = 7 or more times

- (a) Which meal does \_\_\_\_\_ usually eat away from home?

Record (1) = breakfast

(2) = lunch

(3) = dinner

- (b) If there is a second meal eaten away from home, which is it? (SAME CODE). If there is NO second meal eaten away from home, record 9 and continue.

which is it? (SAME CODE).

meal eaten away from home, record 9 and continue.

27. How often does \_\_\_\_\_ use soy sauce, finadene, Ajinomoto (MSG), or a salt shaker at the table?

Record (0) = Rarely, never

(1) = Occasionally

(2) = Often

(3) = Always, everyday

[illegible]

**\*\* FORMERLY CARD 53 PAGE 19 \*\***

32. Has anyone in this household ever received training in cardi-pulmonary resuscitation (CPR)?  
Record (1) = Yes, who is this?  
(2) = No (Skip to Question 33)

**FIRST AID/CPR**

[illegible]

**\*\* FORMERLY CARD 54 PAGE 20 \*\***



APPENDIX D  
FLASH CARDS

CARD C - Question 2d  
Education

Highest Grade Completed

- (1) Elementary - K 1 2 3 4 5 6 7 8  
(2) High School - 9 10 11 12  
(3) College - 1 2 3 4 5 or more years

CARD D - Question 2g  
Ethnicity

- 01 - Black  
02 - Caucasian  
03 - Chamorro  
04 - Chinese  
05 - Filipino  
06 - Indian  
07 - Japanese  
08 - Korean  
09 - Saipanese  
10 - T.T. Islander (Specify: \_\_\_\_\_)  
Island Group  
11 - Vietnamese  
12 - Other Single (Specify: \_\_\_\_\_)  
13 - Chamorro/Filipino  
14 - Other Combination (Specify: \_\_\_\_\_)

CARD L - Question 15cOFF-ISLAND Service

- 1 - Physical Rehabilitation Services
- 2 - Chemotherapy
- 3 - Radiation Therapy
- 4 - Nuclear Medicine Diagnosis and Treatment
- 5 - Open Heart Surgery
- 6 - Organ Transplant
- 7 - Eye Surgery
- 8 - Correcting of Congenital Abnormality
- 9 - Other (Specify: \_\_\_\_\_)

CARD M - Question 22aExercise List

- 01 - Jogging/running
- 02 - Swimming
- 03 - Tennis
- 04 - Baseball/softball
- 05 - Basketball
- 06 - Weight lifting
- 07 - Working Around the Yard
- 08 - Doing Housework
- 09 - Racquetball
- 10 - Walking (over 1 mile)
- 11 - Aerobics/20 minute workout/heavy workout
- 12 - Bowling
- 13 - Golf
- 14 - Stretching/light workout
- 15 - Football
- 16 - Volleyball
- 17 - Biking
- 18 - Surfing
- 19 - Soccer
- 20 - Other

CARD Z - QUESTION 7bSaw a doctor and diagnosed:

- 00 less than 1 month
- 01-12 actual number of months
- 13 over 12 months
- 16 doesn't know when within 12 months

Saw a doctor but not diagnosed:

- 20 less than 1 month
- 21-32 actual number of months (1-12)
- 33 over 12 months
- 36 doesn't know when within 12 months

No doctor but self-diagnosed:

- 40 less than 1 month
- 41-52 actual number of months (1-12)
- 53 over 12 months
- 56 don't know when within 12 months
- 60 unknown, don't know or no answer

CARD AA - QUESTION 30a  
Reason for depression, etc.

- 01 family problems
- 02 death/illness immediate family
- 03 death/illness relative/friends
- 04 divorce/separation (his/her own)
- 05 loss of job or job problems
- 06 moving
- 07 homesick
- 08 financial
- 09 medication side affect

APPENDIX E  
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APPENDIX F  
PROJECT PLANNING TEAM

## GHPDA/CDI PROJECT TEAM

A number of individuals played an active part in the planning and implementation of the islandwide health behavior survey project. The extent of involvement varied. However, all played significant roles.

## GHPDA Personnel

Ms. Priscilla Maanao, former Administrator  
Mr. Michael Duenas, Acting Administrator  
Mr. Jose Mendiola, Deputy Administrator  
Ms. Gloria Long, former Planner  
Ms. Ulla-Katrina Craig, Planner  
Ms. Cynthia Naval, Planner

## CDI Personnel

Dr. Lawrence F. Kasperbauer, Project Leader/Director, CDI  
Mr. Leonardo M. Rapadas, Data Collection Computer Entry  
Supervisor  
Dr. Randall Workman, Sociology Extension Specialist

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