A Survey of Colorado's Migrant Farmworkers: Access to Health Care

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This report utilizes data collected in a sample survey of Colorado's adult migrant farmworker population to determine their health needs, health services utilization, and overall access to care. Health needs include selected indices of medical, dental, nutrition and reproductive health. The conclusions and recommendations of the report address pertinent issues in the funding and delivery of health care services to the migrant farmworker population.

The Colorado Migrant Health Program (CMHP) plays a leading role in the provision of health services to a targeted population of approximately 41,000 migrant and seasonal farmworkers and dependent family members. Colorado is one of over 30 "upstream" states with federally funded programs, upstream indicating that the state is a destination for migrants seeking temporary residence to engage in agricultural labor. Operating as a section of the Colorado Department of Health, CMHP annually serves approximately 7,000 medical patients and 3,000 dental patients, including nearly 2,000 school-age children enrolled in migrant education summer schools. These services are provided in a variety of settings: outreach clinics, community-based health care organizations, private health care providers with CMHP agreements, migrant education schools, migrant Daycare/Headstart centers and one county health department. An additional combined total of 9,500 medical patients and 3,600 dental patients are served annually by three other migrant health grantees (two in North Central Colorado and one in the San Luis Valley).

THE PROBLEM

Although Colorado has a well-developed statewide system of coordinated health care services for migrant farmworkers, effective health care planning has been hampered by the absence of a comprehensive data base that accurately describes the migrant population's demographics (age, sex, education, language, family size, work history, permanent residence), health status, health services utilization, and user satisfaction with services received. Because migrant farmworkers have a unique lifestyle and a wide variety of

readily observable environmental health hazards associated with both employment and housing conditions (Wilk, 1986), assessment of numerous interrelated variables is necessary to understand the health status and needs of this special population. While these data are essential at any level of policy making for the group under study, this information is critical during a period of level or declining funding. Scarce funds must be strategically targeted to real, not conjectured, problem areas and rigorous evaluation must be conducted on all new program initiatives.

The overall goal of the study was to survey Colorado's adult male and female migrant farmworker population, ages 18-50 years, for the purpose of developing a demographic profile, evaluating access to health care and proposing recommendations for improving the migrant health service delivery system. Related objectives were to: 1) develop a research tool (questionnaire) in Spanish and English which could be used in replicating the survey elsewhere;[1] and 2) develop a research methodology which could be replicated elsewhere to generate a scientifically designed random sample of the migrant farmworker population.

METHODS

Research Design

The research design was developed in conjunction with onsite consultation from the National Center for Health Statistics. This consultation incorporated consideration into the sample design of the unusual constraints posed by a migrant population. These constraints included: 1) uncertain estimates for migrant population totals in each area; 2) uncertain predictions as to which housing units would be occupied in a given area; 3) high mobility of the population present in the state during the interviewing period; and 4) vagaries in the weather which precipitate unanticipated shifts in employment prompting the migrants to move to other areas or to other states.

For these sampling conditions, it was decided that the most effective approach would be a descriptive study based on a stratified, proportionate, probability sample of the migrant farmworker population residing in Colorado between July 1, 1986 and September 30, 1986. The two strata identified were: 1) families; and 2) solo males. Solo males were defined as males migrating alone or with other males, and who reside with other males; their marital status is not necessarily "single". The sampling was proportionate to account for variations in the numbers of solo males and families estimated to reside in the four areas of the state selected for inclusion in the study. Those areas were: the north central, southeast, south central, and Western

[1] This instrument is available upon request from the authors.

Slope, all identified by the CMHP and the Colorado Department of Agriculture as being the most labor-intensive areas of agriculture in the state.

Sample Design

Interviews included persons 18-50 years of age who were active migrant farmworkers at the time of the survey. A multistage stratified proportionate probability design was employed to arrive at the sample. The State of Colorado was stratified into four regions, identified above, where there was a known high concentration of migrant farmworkers based on information from previous years. Each of the four strata was divided into two substrata. One substratum consisted of the latest available listing of all migrant family housing units (FHUs) within a particular stratum. The other substratum consisted of a listing of all single migrant male beds in all dormitories within a particular stratum.

An attempt was made to arrive at a self-weighting sample, that is, an effort was made in the sampling scheme to select persons with approximately the same probability. This was accomplished by applying the overall sampling fraction (desired total number of sample persons divided by the approximate number of eligible persons in the population) to the estimated number of eligible persons within each substratum. The number of adults in the FHU substrata was approximated by multiplying the estimated average number of FHUs in that substratum by a factor of three (assumed to be the average number of adults per family in all regions, except in the Western Slope where two adults per family were assumed). Within the solo male substrata, the overall sampling fraction was simply applied to the estimated number of solo males in each substratum.

Once the sample number of FHUs and sample number of solo males were determined within a stratum, the actual selection was carried out by taking a systematic random sample of FHUs and dormitory bed numbers within each substratum. Dormitory beds were selected in a single stage process. However, the selection of sample persons within the FHU strata was carried out as a two-stage process. That is, the FHU was selected in the first stage and then eligible males and females were listed separately within the selected FHU. The second stage of selection consisted of randomly selecting a male and a female from the sample FHU. If only one male or female resided in the sample FHU, each was selected with certainty (probability = 1).

Field Procedures Related to Random Selection of Respondents

No listing of the target population was available from which to select a sample prior to initiation of the survey. Instead, lists of the addresses or

locations of residences usually occupied by migrants were constructed for each identified area of the state, one list for family housing units (FHUs) and one list for solo male dormitories. Listers then investigated the solo male dormitories to determine the number of beds available; these bed numbers then comprised the lists used to designate the solo male respondents. Although some residences for solo males were vacant at the time of the listings, it was assumed that they would be occupied at some time during the study period and their bed numbers were added to the solo male lists.

From the two separate lists (FHUs and bed numbers in the solo male dormitories), the sample for the study was randomly selected. The assigned lists with the designated FHUs and solo male dormitory bed numbers were given to each interviewer along with a detailed map of the specific geographical area. In each designated FHU, interviewers listed and numbered all adult males and all adult females eligible for inclusion in the study. One adult male and one adult female was then chosen randomly (numbered chips selected blindly from a bag) for the interview. In each dormitory the solo males occupying the designated numbered beds were the designated solo males for the interviews. No substitutions were allowed. Following the interview, each respondent was given five dollars. After completion of the dental screening, the respondent was given an additional five dollars.

In each area there were fewer occupied residences than anticipated, for reasons primarily related to the weather. The severe spring frost on the Western Slope damaged the fruit crops to the extent that only half the work force was hired for the summer and fall harvests. Severe hail damage in the vegetable and sugar beet fields in the north central area closed two family camps early because of lack of work. One camp for solo males in the south central area failed to open, without any clear reason known to anyone.

Instrument Development

Two instruments were developed for the Colorado Migrant Health Survey: 1) a household screening form to determine eligible family members in sample housing units; and 2) a survey questionnaire in Spanish and English. The questions related to Health Services, Hypertension, Pesticide Exposure, and Medicine/Vitamin Usage were derived from the Hispanic Health and Nutrition Examination Survey (NCHS 1985). The family planning section was based almost entirely on the Centers for Disease Control questionnaire used in their U.S. — Mexico border survey (1979). Several questions related to hunger were adapted from a tool developed by the Food Research and Action Center (FRAC 1986) and the Utah Nutrition Monitoring Project (1985). The Selected Conditions list was derived from the Wisconsin migrant farmworker survey (Slesinger, 1979).

Interviewer Training

Fourteen bilingual interviewers, five males and nine females, were hired on a part-time basis to work throughout the state through the end of September. Male interviewers were used exclusively for interviews with males, and female interviewers were used predominantly for interviews with females. All interviewers were required to complete an intensive two-day training program, after which they were given their assignments. The first three completed surveys of each interviewer were carefully reviewed to ensure that instructions were followed. In addition to weekly telephone contact, the field supervisor made at least two trips to each area to supervise the interviewers and monitor their progress in the completion of their assignments.

Dental Screening

Dental screening was carried out at a pre-arranged time after the respondent completed the interview, either in a local dental clinic or at the migrant site. Eight dental examiners, dental hygienists and dentists, were individually trained to conduct two standardized dental indices: a dental caries status and treatment index (DMFT-modified) and a periodontal health index (CPITN). Dental examiners used calibrated examination instruments and approved portable examination equipment. Dental screening times were scheduled for evening hours to accommodate field work schedules; transportation to and from the screening locations was provided by the survey interviewers when needed. The interviewers, present at every screening, provided a familiar link between the participant and the dental examiner and interpreted when necessary.

Data Collection Results

The original goal of the study was to complete 600 interviews. Because of the weather, several camps remained closed throughout the summer and at least two closed earlier than usual. The subsequent listings resulted in 513 designated respondents of which 331 were interviewed, a response rate of 64.5 percent. Of the 182 nonparticipants, there were 52 refusals; 93 moved after one eligible respondent in the FHU (Family Housing Unit) had been interviewed and included in the study; 37 were ineligible because they did not meet the study criteria (*i.e.* one family adult met the study criteria but the other family adult was not within the age range or was not a farmworker).

Dental screening was completed on 172 respondents. Of the 159 interviews without dental screening, there were 46 refusals; 46 persons moved prior to dental screening. One area was without dental examiners resulting in 67 non-dental screenings.

Data Analysis and Statistical Computations

The statistics presented are based on a sample of the target population rather than on the entire population. The standard error is used to compute the confidence interval, the estimate plus or minus two standard errors of the estimate within which the true population value lies with 95 percent confidence. The computation of confidence intervals and standard errors was adjusted to account for the difference between the targeted sample and actual sample in each stratum. Equations taken from Kish (1965) provide a correction and describe the calculations (Appendix A).

THE POPULATION

Interviews from a total of 329 adult farmworkers, between the ages of 18 and 50 years, were analyzed. In terms of ethnicity, Hispanics predominated (94.2%) followed by American Indian (2.4%) Anglo (1.2%) or other (2.1%). The sample was stratified by solo males and families resulting in the following totals: 129 family males, 126 family females, and 74 solo males. There were differences among the three groups in terms of age, marital status, place of permanent residence, language skills, and whether this was their first visit to Colorado. The term "sex status" is used when differentiating family males, family females and solo males.

In terms of age solo males were slightly younger with a mean age of 29.4 years compared with a mean for family males of 32.5 and family females of 31.9 years. The mean for the total population was 31.6. Over half (51.5%) of the population reported that their permanent residence or "homebase" was in Texas. Permanent residences outside the United States, predominantly Mexico, accounted for 28.3 percent of the total. Six percent (6.4%) were intrastate migrants who lived year-round in Colorado, while another 14 percent came from states other than Texas or Colorado. One solo male denied having a permanent residence. Several demographic variables were shown to be associated with place of permanent residence. They include:

1) sex status: more solo males (78.4%) than family males (17.2%) or family females (10.3%) reported a homebase outside the U.S.;

2) marital status: more single persons (58.3%) than married persons (21.2%) had a homebase outside the U.S;

3) age: younger migrants were more likely to have a homebase outside the U.S. The mean age of migrants from Texas was 33 years, other U.S. states 32.8, and Mexico and Guatemala 28.1 years.

4) language: migrants living outside the U.S. were more likely to speak mostly Spanish, more likely to read Spanish well, and less likely to be able to read English.

The mean education level for the total population was 6.4 years with a mean and mode of 6.0. The mean educational level for the females was slightly higher at 6.7, followed by the family males at 6.3, and solo males at 6.2 years. Only 10-14 percent of the population had completed high school. Education was not associated with sex, sex status, or homebase. Most of the migrants in this study were married (73.6%), followed by those reporting to be single (18.2%), separated (4.9%), divorced (2.7%), or widowed (0.6%). Marital status was associated with:

1) sex status: 50.0 percent of the solo males reported being single as contrasted with family males (14%) and family females (4.0%);

2) sex: females were more likely (83.3%) to be married than males (67.5%);

3) permanent residence: 58.3 percent of the single persons, as contrasted with only 21 percent of the married persons, identified a permanent residence outside the U.S.

The vast majority of the population reported that the language spoken most frequently was Spanish (77%). Seventeen percent spoke English and Spanish about the same. Six percent spoke mostly English. Language was associated with other variables. Persons who reported a permanent residence outside the United States were most likely to speak mostly Spanish (97.8%). A higher proportion of solo males (94.6%) than family males (75.9%) spoke mostly Spanish. Eighty-five percent (85.7%) of those who spoke mostly Spanish had no education. The ability to read Spanish was not related to sex but was associated with education. The ability to read English was associated with sex status, sex, education, and homebase. Solo males had the highest proportion (71.6%) unable to read English at all, while females were more likely (32.5%) to report being able to read English very well.

All of the persons included in this survey, by definition, were currently involved in farmwork. Because of the exigencies of migrant farm labor, not all were presently employed full time at the time of the interview; some were unemployed awaiting work in the fields. Two women who identified themselves as homemakers also did farm labor.

For the majority, migration was a tradition. Seventy-three percent stated that their fathers had done migrant farmwork; 53.5 percent reported that their grandparents had done migrant farmwork. There were no associations with sex, sex status, or permanent residence. The mean age for starting farm labor for the entire population was 16.6 years with a mode of 12 and a median of 15, and a range from four years to 43 years. The median age for solo males, family males and family females to begin farmwork was 15 years.

One third (34%) reported that this was their first visit to Colorado. Of those who were from outside the country (Mexico and Guatemala), 46.2% reported being here for the first time. For all those who had been to Colorado before, the average number of years coming to Colorado was six, the mode

was two, and the median was four. There were no associations with sex or sex status.

In 1985 the poverty threshold for a family of four was $8,450 (non-farm) and $7,190 (farm). The poverty threshold for a family of six was $11,210 (non-farm) and $9,530 (farm). Ninety percent of the migrant farmworker families reported family incomes in 1985 of $11,000 or less; nearly two thirds had incomes of $7,000 or less. The mean family income (excluding solo males) was $6,367. Income was calculated for individuals as well as for families. For all individuals in the total population, the mean income was $3,571, with a median and mode of $3,000. The range was $0 to $22,000, the latter reported by a family male who had worked for the railroad in 1985. Income takes on more significance when the number of family members at their homebase is taken into consideration. The average number of family members living at the permanent residence was 6.2 for families and 5.4 for solo males. Forty-three percent (N=141) believed that they were finanacially worse off in 1986 than they were in 1985. Another 28 percent (N=90) thought there had been no change.

The demographic profile which emerges from the data indicates that the population was Hispanic and relatively young. The family males and females were more likely to have permanent homes in Texas or some other "down-stream" state, while the solo males were more likely to originate in Mexico. The family males and females were mostly married while half of the solo males reported being single. Migration was a way of life for most of the migrants, their initiation into migrant labor occurring during childhood. With education generally limited to the primary grades, the population was mostly monolingual in Spanish. The deficiencies related to language skills, education, and employment skills functioned to bind the adults to migrant labor and a life of poverty. Their average family income of $6,367, well below the poverty threshold for a family of six, places migrants among the country's most deprived.

HEALTH STATUS

Unlike the general population of the United States, of whom 6.1 percent consider their health to be fair or poor, over half of the migrants (50.5%) identified their health as fair or poor. The others (49.5%) reported being in good, very good, or excellent health. Findings were similar to those reported in the Wisconsin migrant worker survey (Slesinger, 1979), but reflect their inferior perceived health status relative to the U.S. population as a whole (NCHS, 1984). Perceived health status becomes more significant when viewed in the context of reported health problems, use of over-the-counter medicines, pesticide exposure, dental and reproductive health, and hunger.

The migrants were asked whether any of a list of 25 conditions bothered them some, very much or not at all, a list which emphasized symptoms rather

than complex diagnoses (Slesinger, 1979). The frequencies are listed in rank order in Table 1 beginning with "tooth or gum trouble" experienced by one-half (49.9% N=164) of the population.

An unexpected finding of this survey was the number of associations between specific illness conditions and sex and sex status. Women were more likely to report low spirits, irritability, headaches, strong anger, allergies, eye trouble, bladder trouble, and anemia. The relationship between many of these symptoms and stress suggests that the migrant life-style presents a large burden for women, a burden which has not been thoroughly investigated. Interviewers described the isolation of the migrant women, their frustrations in attempts to foster their family's welfare despite the irregularities of the weather, wages, crops, and untold other variables. Reported one interviewer, "There's no way out for them".

Other associations were found between increased age and eye trouble, arthritis, reported high blood pressure, and diabetes. Headaches were associated with eye trouble and dental problems. The interaction between poor field sanitation and digestive problems and bladder problems can only be conjectured.

A series of questions related to high blood pressure indicated some associations with sex. Females (77.6%) were more likely than males (46.8%) to have had their blood pressure taken within the past year. Males were more likely (30.5%) never to have had their blood pressure taken than were females (4.8%). Of the females who had had their blood pressures taken, 21 percent (N=25) had been told that their blood pressure was high and needed either treatment or watching. Eight percent (N=11) of the males who had a previous blood pressure reading had received a similar warning.

The migrants reported using a variety of herbs, and over-the-counter medicines and vitamins. Over one-fifth (22.6%) were able to identify one or more herbs which they tried for common ailments such as indigestion or headaches. The most common herbs reported were yerba buena and manzanilla tea. Over-the-counter medicines most commonly used over the past two weeks were pain relievers (50.2%), eye drops (21.0%), and respiratory medicines (19.1%). Although some of the frequencies were small, higher proportions of women than men reported taking pain relievers (64.3%), laxatives (17.6%), diarrhea medicines (17.5%), and diet pills or diet aids (6.3%). These data become more meaningful in conjunction with the higher incidences of irritability, low spirits, headaches, and strong anger reported by women.

Health status may also be related to hazards which are yet unquantified. Pesticides pose special hazards for migrants because of their roles in: 1) the handling of pesticide-coated fruits and vegetables; 2) their presence in the fields during or soon after large scale applications or drift; and, 3) their occasional involvement in mixing or applying the chemicals. Migrants are

TABLE 1

SELECTED CONDITIONS BY REPORTS OF SOME OR VERY MUCH BOTHER, PERCENTAGES[a]

	Family Males		Family Females		Solo Males	
1. Tooth or Gum Trouble	44.2	(7.3)	48.1	(4.0)	60.8	(4.0)
2. Eye Trouble	40.3	(4.3)	54.0	(3.8)	42.0	(5.2)
3. Headaches	26.4	(5.4)	51.6	(3.9)	31.1	(4.3)
4. Backache	41.0	(4.2)	36.5	(4.6)	25.7	(6.9)
5. Strong Anger	24.8	(5.6)	40.0	(4.4)	23.0	(5.9)
6. Nervousness	26.0	(5.7)	32.5	(4.9)	31.1	(6.2)
7. Irritability	17.8	(6.5)	31.7	(5.0)	21.6	(6.3)
8. Menstrual Trouble	0.0		25.4	(5.7)	0.0	
9. Stomach Pains	14.0	(7.9)	23.8	(6.0)	28.4	(6.5)
10. Low Spirits	11.6	(8.2)	30.2	(5.1)	18.9	(7.9)
11. Shortness of Breath	14.7	(7.3)	26.2	(5.5)	18.9	(8.3)
12. Trouble Sleeping	17.1	(7.1)	17.5	(7.6)	16.2	(8.3)
13. Pain in Chest	10.1	(9.5)	20.6	(6.3)	17.6	(6.0)
14. Arthritis	12.4		19.0		13.5	
15. Coughing	10.9		16.0		16.2	
16. High Blood Pressure	13.2		19.8		5.4	
17. Digestive Problems	8.5		15.1		18.0	
18. Bladder Trouble	5.4		22.2		10.8	
19. Rashes	11.6		12.7		16.2	
20. Swollen Joints	9.3		11.9		10.8	
21. Allergies	5.4		16.7		9.5	
22. Ear Trouble	7.8		11.9		10.8	
23. Anemia	3.9		16.7		6.8	
24. Diabetes	4.7		4.0		0.0	
25. Asthma	1.5		6.0		1.4	
	(N = 129)		(N = 126)		(N = 74)	

Note: [a] Confidence intervals are included in parentheses.

often unaware of these exposure situations and, if symptoms do occur, they may not associate them with pesticides.

For most of the migrants, over half the year was spent working in agriculture and potentially in contact with pesticides. Females worked fewer months in the fields than family males or solo males. Direct contact with pesticides was reported by one third (33.1%) of the migrants in response to the question if

pesticides had ever been applied to an area while they were working it. Of special concern are the 13 percent (N=44) who had had pesticides spilled or sprayed on them sometime in the past. Of these 44 persons, over one fifth (22.7% N=10) believed that they had become ill because of the exposure.

Dental information was derived from two sources: the interviews of the total population (N=329), and the dental screenings which were completed by dental clinicians (dentists and dental hygienists) on fifty-two percent (N=172) of the total population. Dental screening was composed of two standardized indices: a periodontal health index (CPITN) and a dental caries status and treatment needs index (DMFT-Modified). The conclusion is that the dental needs of the adult migrant farmworkers are immediate, especially in terms of decayed teeth, and exceed those of comparable populations.

Participants' responses to the length of time since their last dental visit were fairly evenly distributed over the given time intervals of one to 11 months, one to two years, or never, with two or more years (30.5%) being the most common response. These results were not associated with age, sex, or education; however, permanent residence was associated with never having visited a dentist. Thirty-five percent of those whose permanent residence was outside the U.S. had never seen a dentist as compared with 18.3 percent of those whose homebase was in the U.S. Generally, the migrant population showed a higher prevalence of never having visited a dentist and a lower prevalence of having visited a dentist in the past year than comparable populations (NCHS, 1984). Including those who had never been to a dentist, 80.9 percent (N=266) stated that they did not visit the dentist regularly; 78.7 percent did not have a usual dentist at their permanent residence. No demographic factors were associated with these findings suggesting that dental care is primarily sought for the treatment of symptoms rather than preventive measures.

Those who had had a prior dental visit (N=252) were generally satisfied with the care received. The predominant problem was that the care cost too much (23.4%, N=59), reported by males and females alike of all ages. Ninety-two respondents (28%) stated that they had used dental services in Colorado at some time in the past. Of those respondents using Colorado dental services, 89.2 percent (N=82) were satisfied or very satisfied with the care they received and this was not associated with age or sex.

Fifty percent (N=164) of the total population identified that tooth or gum trouble bothered them "very much" (20.7%, N=68) or "some" (29.3%, N=96). Those who were bothered by tooth or gum trouble were more likely to state that they needed dental work at the time of the survey (95.1%, N=156) than those who were not bothered by this condition (54.9%, N=90). Of all the survey respondents (N=329), 75 percent felt they needed dental work at the time of the survey.

Of those who stated they needed dental care (N=246), "cost" was the most frequent response given as the main reason for not seeking care at that time (43.8%, N=109), followed by "no time to seek care" (18.9%, N=47) and "did not know where to go" (8.4%, N=21).

The CPITN is the Community Periodontal Index of Treatment Needs which was developed by WHO for rapid assessment of the mean periodontal disease status (degree of gum disease) of a population as well as the prevalence of periodontal disease involvement. Data collected in this index are restricted to bleeding, calculus, and pocketing as identified through the use of a periodontal probe. From the periodontal health index (CPITN), an overall mouth score (periodontal disease score) for each screened participant (N=172) was derived, with classification based on the highest (worst) score in any sextant (one of six areas of the mouth). One person who was screened had no teeth and is not included in this portion of the analysis. Of the remaining 171 persons screened, 100 percent had at least one sextant which bled upon probing (probe inserted in the space between the tooth and gum); 80.7 percent (N=138) had at least one pocket of 4-5 mm; 23.4 percent (N=40) had at least one pocket of 6 mm or deeper. No participant had completely healthy tissues, defined as no bleeding and no calculus less than or equal to 3 mm on probing.

Only nine people (5%) had completely sound dentitions (no caries, restorations, or missing teeth). Only twelve percent (N=21) of the population had no decay, while 73 percent (N=126) of the participants exhibited three or more decayed teeth. Females (40.9%) were more likely to have fillings than males (26.4%). Over half (53% N=91) of those screened were missing one or more teeth; one person was missing all 28 teeth. Age was associated with missing teeth.

The treatment needs – fillings, extractions, and replacements of non-restorable or missing teeth – were identified, based on the classification and extent of the caries status. The mean number of teeth per respondent needing restorations (fillings) was five, and the mean number of teeth per respondent needing to be replaced was 1.5. Only seventeen people (9.9%) needed no treatment on any of their teeth; in that group, the one person who was missing all 28 teeth had a good, working denture and needed no treatment. Thirty-two people (18.6%) had one or more teeth which needed to be extracted.

In terms of respondents' reproductive health, ninety-five percent (N=120) of the women interviewed had had a pregnancy and, for purposes of this study, were categorized as "ever-pregnant". For these women, the mean number of pregnancies was 4.9. For those women reporting a live birth, the mean number of living children was 4.2.

One third (32.5%) of the total ever-pregnant women (N=120) had had at least one miscarriage or abortion. There was no attempt to distinguish

between induced and spontaneous abortions or miscarriages. The number of miscarriages or abortions ranged from one to five. Nine (7.5%) of the ever-pregnant women had had stillbirths. Twenty-one women (17.5%) had experienced the tragedy of a child dying. Fifteen women (12.5%) reported that they had had a child die during the first year of life (infant mortality); five women (4.2%) had a child die during the first month of life (neonatal mortality).

Major differences existed in the reproductive histories of the women under age 35 years and those age 35 years or over. Seventy-seven percent (N=40) of the 52 older women had had five or more pregnancies. Sixty-nine percent (N=36) of the older women had had five or more live births. Over one-third (36%) reported at least one miscarriage or abortion and 13.4 percent (N=7) had had two or more. The data become even more compelling when considered along with ideal number of children and whether the last pregnancy was wanted (*see*, page 703). By any definition, the women age 35 years and over were high risk for fetal, infant or maternal morbidity and mortality and needed to be identified for family planning counseling.

Related to health status is the finding that 43 percent (N=65) of the families and 67.8 percent (N=46) of the solo males had difficulty getting good food while away from home. While the specific factors were not explored in this survey, they are well known: poverty, unemployment, mobility, lack of transportation, lack of cooking facilities and refrigeration, and ever-present insects and rodents.

Forty percent (N=61) of the families and 58 percent (N=43) of the solo males reported running out of money to buy food over the past twelve months. Of those who ran out money to buy food, a higher proportion of solo males (67%) than families (47%) reported that this occurred at their homebase. However, the situation was reversed in Colorado with a higher proportion of families (77%) than solo males (54%) experiencing this crisis.

One-third (33.6%) of the families and 42 percent of the solo males reported that they ate less than they should at least three to four times a year because there was not enough food for the whole family. Furthermore, many of the migrants believed that their health had been hurt by having too little food or the wrong kind of food. Over a fourth (26.3%) of the families and a third (39.2%) of the solo males had this concern.

There were differences in the proportions of families and solo males who had accessed food programs over the past 12 months. Food Stamps was accessed by 75 percent of the families and only 8.1 percent of solo males. WIC (Women, Infants and Children) Program benefited 46 percent of the families; 30 percent of the families received Commodity Supplemental Foods; Food Banks/free food was received by 31 percent of the families and 13.5 percent of the solo males. The primary elegibility requirements for the programs varied as follows: the Food Stamps Program requires proof of citizenship;

the WIC Program and Commodity Supplemental Food Programs are limited to pregnant, post partum, or breast-feeding women, and children under age five years and six years respectively. Food Stamps, food banks or free food were the only resources for the solo males who had no children.

At the end of the interview, all respondents were asked to identify what they would do with an extra ten dollars ($10.00). In terms of food and hunger, their responses are significant. Over one-half (55.9%) of the families would spend the money on food; over two-thirds (66.2%) of the solo males would buy food. For most of the migrants, food was a basic need which often went unfulfilled.

Summary

A large majority perceived their health to be fair or poor, unlike the U.S. population as a whole. Dental problems were reported with the highest frequency, followed by eye problems, back pain, and a constellation of symptoms which could be attributed to stress. Women were more likely to complain of the stress-related symptoms, a finding which deserves further investigation. Over half of the population reported taking a pain reliever within the past two weeks, many had resorted to laxatives or diarrhea medicines, not unexpected with the percentages reporting digestive problems. Reported dental problems were corroborated by dental examinations which verified the poor dental health of the total population, immediate needs which have gone untreated, primarily because of the cost of treatment. Another prominent indicator of poor health status is the reports of fetal deaths, neonatal deaths, and infant deaths among the women reporting a previous pregnancy. The relationship between health status and other variables such as poverty, hunger, and environmental hazards can only be conjectured.

UTILIZATION OF HEALTH SERVICES

Having established the demographics and health status of the population, an analysis of their utilization of health services is revealing, along with other indicators of access to health care. Special consideration is given to the family planning needs of both men and women, in terms of their reported ideal family size and interest in family planning.

One fourth of the population (25.3%, N=83) did not have a usual place of health care at their permanent residence, slightly higher than the 22.4 percent reported by Mexican Americans and considerably higher than the 14.1 percent reported by Non-Hispanic whites in the preliminary Hispanic HANES report (Carter *et al.*, 1985). Women (83.3%) were more likely than men (69.5%) to identify a usual place of care and were more likely (44.4%) to use the migrant clinic than either family males (23.3%) or solo males (4.1%).

Excluding Colorado's intrastate migrants (N = 21), one third of the sample (34.2%, N=105) utilized a federally-sponsored health facility (migrant health clinic, community health center or health clinic) as a usual place of health care at their permanent residence. However, one fourth ((25.4%, N=78) had no usual source of care and one fifth (22.1%, N=68) had a permanent residence outside the U.S. (Mexico or Guatemala) where subsidized care may or may not have been available.

More than one half (51.3%, N=168) of the migrants interviewed identified Texas as their place of permanent residence. Nearly half (47.6%, N=80) of those from Texas reported using federally sponsored resources (migrant health clinic, community health or other health clinics) as a usual source of care. However, nearly one fourth of the Texas-based migrants (24.4%, N=41) indicated they had no usual source of care.

Over half (52.6%, N=173) of the population had used health services in Colorado at some time, and women were more likely than males to report this. Forty percent (N=133) of the total population identified their usual place of care in Colorado as the migrant health clinic, community health center or other clinic. This is congruent with the percentage of migrants using federally-sponsored health services either in Texas or other states. However, it is not known how many of those interviewed subsequently accessed these services in Colorado after the interview process. It is important to note again that in 1986, 34 percent of the adult migrants in Colorado were working and living in the state for the first time.

One third (33.8%, N=52) of the migrants who had a usual place of health care in Colorado had heard about the place from a migrant health program outreach worker. The other referrals were distributed fairly evenly among friends (18.2%), relatives (14.9%), crew leaders (11.7%), or other (12.3%). Fourteen (9.1%) had found the place themselves.

Of the total respondents, twelve (3.6%) had never had a medical visit. Forty-five percent (N=148) had not received health care in the previous year, a larger proportion than reported for Mexican Americans (31%) or non-Hispanic whites (28.3%) in the preliminary Hispanic HANES report (Carter, *et al.*, 1985). Women (74.6%) were more likely than males (42.9%) to have had a medical visit in the past year. Of the entire sample, one fourth (25.6%) had had their last visit one to five years ago. For 55 persons (17.4%), this visit was over five years ago or they couldn't remember when it occurred.

Those who reported having had a medical visit (N=317) identified where the visit had occurred. Forty-three percent (N=136) had seen a provider in Colorado; 32.6 percent (N=103) had had this visit at their permanent residence. Thirty-eight (12%) had seen a provider in some other state. The remainder (12.4%) had taken place outside the United States. One third of those who could recall their last medical visit related it to illness (36.6%), followed by injury (12.6%), checkup (9.8%), pregnancy care (9.1%) or other (31.9%).

Of those who had a previous medical visit, ninety-four percent (N=294) said they received the care they wanted. The majority (63.1%) noted they were satisfied with the care received. A small percentage (8.7%, N=27) were "not at all satisfied". The other 28 percent (N=88) were somewhat satisfied. Males, especially solo males, were more likely to report dissatisfaction with the care received.

Although voicing satisfaction with the care received, over one fourth of those who had a previous medical visit had experienced a problem. Women were more likely to report that the doctor didn't diagnose or treat the condition. Both women and solo males were more likely to report mistreatment by the doctor or staff than were family males. Whether miscommunication was a factor is not known.

Twelve percent (N=39) of the population had been hospitalized during the previous twelve months. A larger proportion of women (20.6%) reported hospitalization than did family males (4.7%) or solo males (9.5%). Number of hospital admissions per person ranged from one to six. Of those hospitalized, the majority (74.4%) had only one admission with one third pregnancy-related.

Forty-one (12.5%) of the migrants had spent some time in bed over the past four months. The proportion of women (19.8%) who reported this event was greater than either family males (6.2%) or solo males (10.8%). The number of days ranged from one to 60. Forty-five (13.7%) of the total population reported that they had had a previous injury or accident while doing farm labor. Of these, 34 said that the injury had kept them out of work for two or more days, data which deserve further investigation.

This study documents the interest which sexually active migrant farmworkers, predominantly of Mexican culture, have in family planning as well as their utilization of contraceptive methods. It also reveals the extent to which trained community personnel and medical personnel, other than a physician, would be acceptable as providers of services.

Contrary to commonly held stereotypes, the mode and median response for males and females to the question of ideal number of children was three. Family males and family females were similar with means of 3.6 and 3.5 respectively. The solo males, a younger group comprised of more single persons, had a smaller mean (3.3) and range (1-7). In terms of whether their last pregnancy was wanted, 22.7 percent of the sexually active women said no. Of special interest is the disparity between the ideal number of children (4) reported by women 35 years and over, and their live births (mean: 6.1, mode: 5, and median: 5). Furthermore, when asked the question whether their last pregnancy was wanted, 30.8 percent (N=16) of these women said no. An opportunity for effective family planning had been missed and, for many of these women, the dilemma would recur unless immediate intervention occurred.

Over half of the sexually active family males and females reported that

they or their partner used some method of contraception. Sterilization was the preference for women who had completed their families. Oral contraceptives were the method most used by women who wanted a temporary method or who could not afford the surgical intervention of sterilization. In a previous investigation (Littlefield and Stout, 1985), older women complained that no one had introduced the topic of family planning until they had had over six children. Indeed, of the 45 sexually active women not currently using family planning, nine (20%) were pregnant and 14 (31%) reported the desire to use a method of contraception.

Users of temporary methods were asked for their gender preference for family planning service providers. Women were more likely to prefer females, while males were more likely either not to have a preference or to prefer a male. Over half of these men and women would accept services from a medical person other than a physician and from a trained person in the community.

Summary

About one fourth of the population had no usual source of health care. Upstream states such as Colorado are responsible as the primary providers of health services for those who either have no source of health care at their homebase or experience a variety of barriers in their attempts to access services. Women were most likely to have had a medical visit over the past twelve months and were more likely to have experienced hospitalization. Unfortunately, although their contact with medical professionals was more frequent, the family planning needs of women were not being met. A large disparity existed between ideal family size and number of pregnancies and live births.

CONCLUSIONS AND RECOMMENDATIONS

The findings of this survey document the inferior health status of the migrant farmworker population in Colorado. Hunger, poverty, and environmental hazards increase the risk of illness, while at the same time, barriers to care often prevent migrants from accessing needed health services. Nationally, there continues to be a dearth of information from which to plan for migrant health services. In this regard, it would be useful to replicate the Colorado Migrant Farmworker Health Survey in representative states which serve as temporary worksites (upstream) and those identified by migrants as permanent residences (downstream). This would provide an accurate profile of the migrant farmworker population in the United States and promote decision-making and policy development at the national level based upon fact rather than conjecture.

Because a reliable national data base is not yet available, the Department of Health and Human Services, the principal funding resource for migrant

health services, should suspend plans to implement a funding distribution plan for 1988 which is based upon the utilization of their "Needs/Demand/Assessment/State Profile"[2] process and an unpublished 1978 study.[3] Neither of these studies has received the benefit of serious scholarly review. The implementation of this process may well undermine the upstream migrant health infrastructure and remove the only source of health care currently available to the majority of upstream migrant farmworkers. At the same time, because there is insufficient data available in homebase states regarding health status and access, additional funds for current downstream projects would not be strategically targeted and may or may not result in increased access. Likewise, it is unconscionable to continue utilizing nearly ten percent of available primary care funds for special initiatives. Not only have these initiatives been developed without the benefit of defensible research, they are consistently released with incomprehensible guidelines and funded too late in the program year to be implemented in the fiscal period for which Congress allocated the funds.

Family Planning/Reproductive Health

Although women aged 35 and over reported an "ideal" number of children to be 4 (mean) and 3 (median), 21.2 percent had already experienced five pregnancies and 55.7 percent reported six or more. Furthermore, 36 percent had had at least one miscarriage or abortion and 31 percent said their last pregnancy was unwanted. A large number of these women are still fertile and may have additional unplanned pregnancies. Equally distressing is the realization that the situation will not be different for the younger generation unless action is taken.

Recommendations

1. Promote and fund comprehensive family planning and reproductive health services for migrant farmworker women and their partners with special focus on those at risk (closely spaced pregnancies, four or more births, age 35 or over) to include all medically approved and appropriate methods. Special emphasis must be placed on targeting and involving males in reproductive health decisions and services.

2. Incorporate trained family planning promoters in the migrant health delivery system to provide family planning education, non-prescription methods, and facilitate access to culturally sensitive clinical services and methods when indicated.

[2] Available from the Office of Migrant Health, Bureau of Health Care Delivery and Assistance. Department of Health and Human Services. 5600 Fishers Lane, Rockville, Md.

[3] The 1978 Migrant Health Program Target Population Estimates. The Intramerica Research Associates, 1979.

3. Increase the utilization of midlevel providers (nurse practitioners, physicians' assistants, and child health associates) to provide family planning clinic services and training of health promoters.

Dental Health

The Office of Migrant Health has traditionally emphasized preventive services for children. This priority is justified given the constraints of limited funds available for dental services. However, the success of any program aimed at improving the dental health of children without incorporating the parents' support and modeling is questionable. The adult population surveyed, although relatively young, had extensive dental disease, a problem which is not self-limiting as are some medical problems. Twenty-three percent had never been to a dentist; not one person was without some degree of periodontal disease. Seventy-three percent had three or more decayed teeth; over half were missing one or more teeth. The major barrier to dental care was cost.

Recommendations

1. Maintain existing, successful models of restorative dental care for adults.

2. Increase access to services in non-traditional settings (clinics, schools, mobile vans, migrant camps).

3. Increase use of ancillary personnel to provide services, especially dental hygienists, and encourage broadening of Dental Practice Acts to allow fuller utilization of dental hygienists.

Hunger

Many of those interviewed reported running out of money to buy food over the past year or eating less food than they should because there was not enough food for the whole family. If given ten dollars, 56 percent would use the money to buy food. Although not well investigated, chronic, marginal food deprivation could have serious, lasting consequences related to health, psychological well-being, and productivity. Even with existing food programs, many of the migrants are not getting enough to eat.

Recommendations

1. Maintain outreach programs and increase enrollment and participation in the available food programs both upstream and downstream.

2. Encourage migrant health programs to provide leadership in the development of alternative food resources, including food banks, gleaning projects, and cooperatives.

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APPENDIX A

If:

n_h = number of sample migrant workers in stratum h.

N_n = estimated total number of migrant workers in stratum h.

$f_h = n_h/N_h$

$W_h = N_h / \sum N_h$

s_h^2 = sample stratum variance of the variable y.

P_h = proportion of cases in stratum with attribute.

p = proportion of entire sample with attribute.

Then:

Confidence interval = $p \pm 1.96$*S.E.

where Standard Error S.E. = SQRT(var(p)) and ..

$$\text{var}(p) = \sum W_h^2 \ (1-f_h) \ P_h \ \frac{(1-p_h)}{n_h - 1}$$ for proportions, and ..

$$\text{var}(y) = \sum W_h^2 \ (1-f_h) \ \frac{s_h^2}{n_h}$$ for measured variables.

Note: 1.96 is the standard normal deviate corresponding to $p = .05$.