

January 1991

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Trier, Kathy K. (1991) "Assessment of Health Needs in Rural America: A Comparison of Amish and Non-Amish Families," *Sociological Practice*: Vol. 9: Iss. 1, Article 15.

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Assessment of Health Needs in Rural America: A Comparison of Amish and Non-Amish Families

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ABSTRACT

This study examines a state-sponsored initiative to identify the primary health needs in rural areas so that the appropriateness of existing programs and services could be determined, and the development of new ones could be planned. Data were collected through a survey of 200 families, 50 of whom were Amish. Relatively few differences existed between Amish and non-Amish families on health status and use of biomedical services; however, Amish families reported more behavioral risk factors and used more alternative therapies. Benefits from this assessment and planning process were increased public awareness about county health problems, and increased cooperation between the formal biomedical care system and the Amish community.

Introduction

This study examines the results of a midwestern state's efforts to improve the general health status of its rural population through the state public health department and local public health agencies. In 1987–88, a health care needs assessment and planning process which focused on its rural population was initiated by the state public health department. The recognition that the United

States has not kept pace with other industrialized countries in the world on selected health status indicators such as infant mortality and life expectancy and that rural areas in the United States have a characteristic lower level of health services use than their urban counterparts (Hassinger, 1982) precipitated this process.

Assuming that improved public health services would lead to improved health status, the specified objectives of this process were to (1) formulate community health diagnoses that would serve as a basis for public health interventions, (2) determine the appropriateness of existing public health programs and services in resolving identified health needs, and (3) provide the basis for the development of new public health programs and services for unmet health needs.

Due to its uniqueness in the state as well as in the United States, only one of the counties studied will be discussed in this article. This particular county is heavily populated by the Amish who constitute 25 percent of the population in the county. They are not openly accessible to outsiders (the "English"), and are not widely understood. This Amish community practices separatism and shuns modern technology such as electricity, running water, and transportation by automobile.

Research Questions

To address the objectives of the state public health initiative, specific questions were examined:

- What is the self-reported health status of this rural population and what health behaviors are commonly practiced?
- What is the level of use of formal biomedical providers (physicians) in the rural population and for what conditions were these services used?
- Does the rural population also use other alternative health therapies and to what extent?
- Do Amish families differ from non-Amish families on self-reported health status, health behaviors, use of traditional biomedical providers, and the use of alternative health therapies?

Literature

Public Health and Health Status

The relationship between public health services and health status has not been fully examined. Dubos (1959) and McKinlay and McKinlay (1977) suggest that the dramatic improvement made in the reduction of modern mortality in the

United States resulted from factors such as improved living conditions, better nutrition, better sanitation, and safer water—all of which are defined as public health rather than curative health interventions. Furthermore, the United States spends significantly *more* on total health expenditures than other industrialized countries in the world (11.2 percent of Gross Domestic Product), with the bulk of expenditures going into curative health services rather than public health (Schieber and Poullier, 1989). In fact, the United States spends significantly *less* on public health services than other industrialized countries (only 41.4 percent of the total health expenditures).

A frequent criticism of the medical sociology literature is that it examines *only* those services provided by the formal biomedical care system. Literally hundreds of studies have examined the relationship between health status and use of formal biomedical care services such as physicians, hospitals, and their related services (Maurana et al., 1981), but previous findings have been inconsistent and demonstrate little correlation between health status and formal biomedical care (McKinlay and McKinlay, 1977). Freidson (1960) and Gottlieb (1976) both suggested that an informal or "lay" system of referral and treatment exists separate from the formal biomedical care system. Families or social support networks not only may encourage an individual's decision to use services, but also may discourage use (Pratt, 1976). In other words, some social support networks may advise an individual to see a physician while others discourage a physician visit and encourage use of alternative therapy such as a chiropractor visit. Shupe and Hadden (1988) reported that despite the overwhelming predominance and establishment of the formal biomedical care system, a parallel network of alternative health therapies continues to thrive in American society. These alternative health therapies range from the common practices of chiropractic and herbalism to the more exotic practices of iridology and psychic healing.

Limited examination of alternative therapies has been explored in the literature. Kotarba (1975) found extensive use of acupuncture along with biomedical treatment by people with chronic painful conditions. Kronenfeld and Wasner (1982) found that arthritic patients used various alternatives such as jewelry, topical lotions, and vitamins along with biomedical treatment for relief of symptoms associated with their conditions. Levin and Schiller (1987) and Harrell (1988) have observed that the charismatic movement is spreading belief in and use of spiritual healing into the mainstream of Roman Catholicism and various mainline Protestant denominations. McGuire (1988) found alternative health therapies prospering among a sample of New Jersey suburbanites. As yet, the literature has not examined fully the level and pattern of use of these various alternative health therapies nor their relationship to health status.

The Amish Community

Hostetler (1980) reported that the Amish view good health status as an important part of their overall well-being. They are health conscious and seek treatment from biomedical doctors and clinics in their communities. However, the use of these traditional services is limited by two factors—the cost of these services and the access to the doctors and clinics. First, the Amish, whose predominant occupation is farming, have limited outside income providing little hard currency to pay for biomedical care. The Amish also do not believe in commercial insurance. In cases of individual need, the “community” helps by raising money to pay for large medical expenses. Second, access to biomedical health services is limited by the Amish mode of transportation. Getting to and from the doctor’s office by horse and carriage, during regular hours, in all kinds of weather, may be difficult for the Amish family.

It has been reported that the Amish rely heavily on each other to take care of basic needs and use many alternative methods for healing that are available in their community. Folk healers practicing herbalism, reflexology, and iridology, as well as midwives, are considered to be legitimate providers of treatment by the Amish.

While the Amish seek formal biomedical care, Hostetler (1980) reported that they do not emphasize preventive health care, which can lead to serious problems. For example, a pregnant woman may seek biomedical prenatal care and hospital birth for her first child, but subsequent children will be born at home with little or no prenatal care given. Childhood immunizations provide another example. Amish children frequently are educated in Amish schools which do not have immunization requirements for admission. Amish parents may lack the information and/or understanding about the need for immunizations. As a result, Amish children, and subsequently Amish adults, will not be immunized against childhood diseases. This results in a situation in which the Amish community is then at risk for an epidemic of a preventable childhood disease such as measles, mumps, or whooping cough.

Methods

Data for this study were collected as part of an assessment of the health needs of a rural country in a midwestern state. The needs assessment was part of a 1987–88 statewide initiative conducted by the state public health department. The purpose of the assessment was to provide essential information about the health care needs of the rural population in that state and to identify and prioritize

the most important health care problems to be addressed. One component of the study was a survey designed to provide data on a representative sample of all families in the county. The family was determined to be the unit of analysis since present health services literature demonstrates that an individual's health status and health behavior are strongly influenced by the health behavior of the family in total. The selected respondent was the adult family member (19 years of age or older) having the most information concerning the health of all family members.

A unique problem existed in drawing the sample of 200 families. Amish families, who do not have telephones and are not openly accessible to outsiders (the "English"), represented 25 percent of the population in the county. Therefore, 25 percent of the sample (50 families) were drawn from the Amish church districts. Working through the county nurse and some of the local Amish church bishops, researchers were able to gain limited access to Amish families to conduct face-to-face interviews. The non-Amish portion of the sample (150 families), selected randomly from the local telephone book, were then surveyed via telephone.

Methodological concern exists since only the non-Amish portion (75%) of the sample was drawn at random. However, considering that this was an applied study, researchers agreed that results could be presented with recognition of the following possible bias:

First, most Amish respondent families were younger families in the child-bearing years. However, not all of them were—some Amish parents were middle aged (40+ years) since Amish women frequently continue having children through menopause. This would tend to skew the sociodemographics such as age, marital status, etc. As a result, researchers felt that bias would be introduced primarily in the health status measures, but could be interpreted in light of the sociodemographics of the respondents. Further, considering that this county had the highest fertility rate in the state, the lowest rate of prenatal care in the first trimester of pregnancy, and the lowest percentage of hospital births, researchers felt that the health status measures would be interesting to examine in spite of the lack of randomization of the Amish subsample.

Researchers felt that the bias which was introduced into the results by the lack of randomization for the Amish subsample was preferable to the entire omission of Amish families from the study. Overall response rate was 78 percent with 194 families surveyed—51 of which were Amish and 143 non-Amish.

Description of Respondents. The 194 families surveyed in the Household Survey represented a total of 676 individuals—49.5 percent male and 50.5

percent female. However, the selected adult respondent for each family (i.e., the adult who knew most about the health of the family) was female 72 percent of the time. Total family size ranged from 1 to 13 persons with an average size of 3.5 persons. Children represented 40 percent of the total number of family members. Adults ranged in age from 19 to 99 years of age with 24 percent of family members in the 19–25 year age category.

Seventy-five percent of adults were married with 47 percent of working aged adults employed full-time, 12 percent part-time, and 40 percent not employed. Of those adults who were employed at least part-time, 25 percent received a salary, 54 percent hourly wage and 19 percent self-employed.

Out of 406 adult family members, 133, or 33 percent, had an eighth-grade education or less which reflects the heavy Amish population in the county. Thirty percent were high school graduates and only 23 percent had more than a high school education.

Total family income ranged from less than \$10,000 to over \$50,000 with the most frequently reported income (31%) ranging from \$25,000 to \$34,999. Nine percent of families reported incomes of less than \$10,000 and 6 percent of families reported incomes of \$50,000 or more.

Length of residency for the families ranged from one year to 84 years with an average of 28 years. Thirty percent of families lived on farms, 30 percent lived in small towns, 5 percent lived in a city, and 35 percent lived in the countryside but not on a farm.

Operational Definitions. Health status was operationally defined by asking the respondent for a self-report of his or her own health and the health of the family. Health behaviors were measured by asking if the respondent or any family member smoked cigarettes, exercised regularly, or ate foods with salt or animal fat. Asking if the respondent had used any of a list of alternative therapies such as massage therapy, folk medicine, or acupuncture measured the use of health therapies. Use of formal biomedical and alternative providers was operationally defined by asking the respondent where and to whom they usually went when they needed health care and if they or a family member had seen a physician in the past twelve months (see Tables 1–4).

Statistical Analysis. Given that the primary purpose of this study was to examine public health needs and to determine the adequacy of available services, analysis is of a descriptive nature. Frequencies for the health status, health behavior, and use of providers/therapies measures are presented. A comparison of Amish to non-Amish families on these variables also are reported to determine if the needs for the Amish and non-Amish are similar. Chi square is used as the test statistic for these comparisons with significance level set at $p = .05$ or less.

Results

General Health Status, Preventive Health Behaviors, and Evaluation of Available Health Services

In general, families surveyed were healthy but did not always practice healthy lifestyles (Table 1). Most respondents reported that they and their families had good to excellent health—nearly 80 percent reported good health or better. However, only 68 percent of families reported that none of their members smoked cigarettes and only 66 percent reported exercising for twenty minutes or more at least three times per week. Nearly half of the families (49%) reported eating beef, pork, or foods cooked in animal fat at least once a day, and over 50 percent reported eating salt frequently. All of these patterns have been identified as risk factors associated with the leading causes of death. Public health education programs can be developed to address their lifestyle patterns.

Table 1
Frequencies: Health Status, Preventive Health Behaviors
and Evaluation of Available Health Services

General Health Status:

Would you say that the health of your family in general is:

1. excellent	33%
2. good	47%
3. fair	13%
4. poor	7%

Would you say that your own health in general is:

1. excellent	33%
2. good	48%
3. fair	13%
4. poor	6%

Preventive Health Behaviors

Do you or anyone in your family currently smoke cigarettes?

1. yes	33%
2. no	67%

On the average, about how often do you exercise or are physically active for at least 20 minutes or more so that your pulse rate (heart rate) becomes rapid?

1. at least once a day	39%
2. less than once a day but at least 3 times/week	27%
3. 1–2 times/week	11%
4. less than 1 time/week	23%

On the average, about how often do you eat beef, pork or food cooked in animal fat?

- | | |
|--|-----|
| 1. every meal | 3% |
| 2. at least once a day, but not every meal | 46% |
| 3. less than once a day, but at least 3 times/week | 35% |
| 4. 1–2 times/week | 11% |
| 5. less than 1 time/week | 5% |

About how often do you eat salted foods or add salt to cooked foods?

- | | |
|---------------|-----|
| 1. frequently | 52% |
| 2. sometimes | 25% |
| 3. seldom | 15% |
| 4. never | 8% |

Evaluation of Available Health Services

In general, what is your opinion of the health care available to you in this county?

- | | |
|--------------|-----|
| 1. excellent | 14% |
| 2. good | 54% |
| 3. fair | 26% |
| 4. poor | 6% |

Families generally felt that the health care available in their county was good. However, nearly one-third of families (32%) evaluated available health care services as fair or poor. Why did this many families rate available services as fair or poor? Had they personally experienced substandard care? Do they perceive that all health services are only fair or poor, or is it only some services that are less than desirable? Is an evaluation of fair an acceptable level of quality for available health services? This finding warrants closer consideration by the Public Health Department and the community.

Amish/Non-Amish Comparison. The comparison between Amish and non-Amish families on health status, preventive health behaviors, and evaluation of available services is presented in Table 2. Both Amish and non-Amish families reported good health, but Amish families had significantly more dietary health risks than their non-Amish counterparts. Amish families ate beef, pork, and salt significantly more often than non-Amish families.

When comparing the opinions of Amish and non-Amish families on the evaluation of the available health care, Amish families tended to rate the available health care as good to superior (88%) while non-Amish families tended to rate it as fair to good (82%). Have Amish families had more satisfactory experiences with the health care system, or do non-Amish families have greater expectations of the health care system? Perhaps the definition of the health care system—that

Table 2
 Comparison of Amish to Non-Amish: Significant Preventive
 Health Behaviors and Evaluation of Available Health Services

	<i>Amish</i>	<i>Non-Amish</i>	<i>P Level*</i>
General Health Status:			
Would you say that the health of your family is:			
1. excellent	29%	34%	(p=.70)
2. good	51%	46%	
3. fair	16%	13%	
4. poor	4%	7%	
Would you say that your own health in general is:			
1. excellent	29%	34%	(p=.16)
2. good	55%	45%	
3. fair	16%	13%	
4. poor	0%	8%	
Preventive Health Behaviors:			
On the average, about how often do you eat beef or pork or food cooked in animal fat?			
1. every meal	2%	4%	(p=.00)
2. at least once a day, but not every meal	70%	35%	
3. less than once a day, but at least 3 times/week	21%	41%	
4. 1-2 times/week	7%	13%	
5. less than 1 time/week	0%	7%	
About how often do you eat salted foods or add salt to cooked foods?			
1. frequently	70%	42%	(p=.00)
2. sometimes	26%	25%	
3. seldom	4%	20%	
4. never	0%	13%	
Evaluation of available health services:			
In general, what is your opinion of the health care available in this county?			
1. excellent	17%	11%	(p=.04)
2. good	71%	52%	
3. fair	12%	30%	
4. poor	0%	7%	

*Level of significance set at $p = .05$ or less.

is, the types of providers and therapies that comprise the health care system—differs between Amish and non-Amish families.

Regular Source of Care and Use of Alternative Therapies

Table 3 indicates that over 90 percent of families reported that they had a particular person or place to go to when they were sick. Ninety-six percent reported that they typically went to a doctor, 39 percent went to a chiropractor, 31 percent to a pharmacist, 21 percent to family, 18 percent to a nurse, 15 percent to a physician's assistant and 14 percent to friends or neighbors. Families tended to seek regular care in doctors' offices (98%), hospital emergency rooms (47%), and to a lesser extent (23%) in their own homes. When families simply wanted advice on health matters, they usually went to the same sources of care.

Various forms of health services/therapies were used in the last year by respondents in addition to traditional biomedical care from a physician. Most often reported therapies were over-the-counter drugs (67%), vitamins/minerals/herbs (61%), exercise (45%), modified diets (42%), prayer (41%), and chiropractic manipulation (25%).

Nearly 90 percent of all families reported that at least one family member had seen a physician in the past year. Out of *all 676 family members*, 350 had seen a physician in the past year. Reasons for the visit ranged from a general checkup to various surgeries with approximately one-third of the conditions reported to be chronic or recurring. The most common health conditions which precipitated physician visits were general checkup, monitoring of conditions that predispose to heart disease (B/P, cholesterol), medical treatment for heart problems, medical treatment for cancer (chemotherapy, radiation), cold, influenza, sore throat, strep throat, etc., lung infection/inflammation (bronchitis, pneumonia), pregnancy, birth/delivery, and ear problems (aches, tubes, infection).

Amish/Non-Amish Comparison. Amish families reported different providers and sites as their regular sources of care than non-Amish families (Table 4). Most Amish families (94%) reported that they used physician services when ill, but 100 percent of non-Amish families reported the same. Amish families tended to use a wider variety of other professional and lay providers of care and support than non-Amish families. The Amish used chiropractors, folk healers, friends/neighbors, and family members significantly ($p = .05$) more often than non-Amish families. Non-Amish families reported using physician assistants and pharmacists more often than Amish families. It is interesting to note that there was no significant difference between Amish and non-Amish families on having seen a physician *in the last year*. This suggests that the use of a physician is pervasive throughout American culture, but that the choice of additional or alternative care differs across subgroups.

Table 3
Frequencies: Regular Source of Care and Use of Therapies

Is there a person or place in particular you and your family members usually go to when you are sick?

1. yes 91% 2. no 9%

Who do you and your family members usually go to when you are sick?***

doctor	96%	midwife	1%
chiropractor	39%	folk healer	6%
minister/faith healer	4%	pharmacist	31%
physician assistant	15%	friends/neighbors	14%
nurse	18%	family	21%

Where do you and your family members usually go to when you are sick?***

doctor's office	98%	church	5%
hospital emergency room	47%	your home	23%
convenience clinic	8%	another person's home	9%

Who do you and your family members go to when you want advice about health concerns?***

doctor	84%	folk healer	5%
chiropractor	18%	pharmacist	6%
minister/faith healer	8%	physician assistant	6%
nurse	24%	friends/neighbors	22%
midwife	1%	family members	39%

Have you or any member of your family used any of the following to treat an illness, injury, or other health condition in the past year?***

modified diet	42%	biofeedback	1%
vitamins/minerals/herbs	61%	yoga	1%
over-the-counter drugs	67%	meditation	5%
exercise	45%	prayer	41%
acupuncture	0%	hypnosis	1%
acupressure	2%	astrology	1%
reflexology	5%	spiritual healing	4%
iridology	1%	psychic healing	3%
music therapy	3%	chiropractic manipulation	25%
midwifery	2%	massage therapy	9%

Have you or any member of your family seen a medical doctor within the past 12 months concerning any illness, injury, or health concerns?

1. yes 89% 2. no 11%

***Percentage of respondents reporting use are shown. Respondents could select more than one provider or therapy; therefore, percentages sum to more than 100%.

Table 4
 Comparison of Amish and Non-Amish: Regular
 Source of Care and Use of Health Therapies

	<i>Amish</i>	<i>Non-Amish</i>	<i>P Level*</i>
Regular Source of Care:			
doctor	94%	100%	(p=.00)
chiropractor	52%	34%	(p=.02)
physician assistant	0%	20%	(p=.00)
midwife	2%	0%	(p=.08)
folk healer	20%	0%	(p=.00)
pharmacist	13%	37%	(p=.00)
friends/neighbors	35%	8%	(p=.00)
family	33%	16%	(p=.01)
Use of Health Therapy:			
modified diet	20%	50%	(p=.00)
vitamins/minerals/herbs	80%	54%	(p=.00)
exercise	30%	51%	(p=.01)
reflexology	16%	1%	(p=.00)
midwifery	6%	0%	(p=.00)
prayer	58%	34%	(p=.00)
psychic healing	10%	0%	(p=.00)
chiropractic manipulation	30%	21%	(p=.01)
Have you or any member of your family seen a medical doctor within the past 12 months concerning any illness, injury, or health concerns?			
1. yes	87%	92%	(p=.35)
2. no	13%	8%	

*Level of significance set at $p = .05$ or less.

Non-Amish families also reported using hospital emergency rooms as a site of care more often than Amish families, while the Amish used their home or another's home more often than the non-Amish. Amish families reported using vitamins/minerals/herbs, reflexology, midwifery, prayer, psychic healing, and chiropractic manipulation significantly more often than non-Amish families. In other words, non-Amish families tended to use providers and sites that are central to the formal biomedical care system, while Amish families are more likely to use those that are marginal to that system (Wolinsky, 1988) or are part of the "lay" treatment and referral system as described by Freidson (1960) and Gottlieb (1976) in addition to biomedical care.

Special Needs/Problems

In a study of this type, numerous anecdotal comments are recorded during data collection. Some are irrelevant to the purpose of the study while others, though not quantifiable, may be extremely important data for consideration. A *primary* concern expressed by a few individuals (both Amish and non-Amish respondents) focused on the relationship between the formal biomedical care system and the Amish who practice folk medicine or other alternative healing methods. It appears that this relationship is frequently strained and, at times, cooperation is non-existent. Concern was expressed over the use of midwives by the Amish in non-hospital births. In fact, this rural county had the highest birth rate in the state but the lowest rate of hospital births. A non-Amish respondent stated that "all births should occur in the hospital under the supervision of a licensed physician." Further, it was felt that the low percentage of pregnant women in the county receiving prenatal care in the first trimester was directly related to not only the number of Amish women who used midwives, but also to those who delayed care until late in the pregnancy because of the previous experience of having numerous children and the transportation difficulty in going to a physician's office.

On the other hand, an older Amish respondent expressed serious concern over the difficulty that arises when a baby born with a midwife in attendance experiences complications, or birth defects. It was reported that when a midwife delivers a "sick" baby, it is almost impossible to get a physician from the local medical community to accept that baby as a patient for admission into the local hospital. Physicians in two communities approximately fifty to eighty miles away agreed to accept these "sick" babies for admission into hospitals in those areas, but in these situations time is crucial.

Further, several Amish families reported that well babies born in the home with a midwife in attendance frequently were never evaluated by a biomedical provider (physician or nurse). Home visits typically were not made for non-hospital births; therefore, babies may be months or even years old before ever seeing a physician or nurse.

Several of the Amish reported that they traveled outside of the county and even the state for routine health care. One Amish woman who was interviewed said she traveled to Canada for a routine hernia operation. This placed a great stress on the family which had a lower income and consisted of her husband and eleven children aged 15 years to 18 months.

A *secondary* concern focused on the compliance of the Amish with public health standards. One Amish respondent reported that the Public Health Department was concerned about the water and food standards in the Amish

community. Numerous Amish schools were operated in the county, and in accordance with public health standards, water samples from the Amish schools must be checked on a periodic basis. Due to their mode of transportation and private funding, it becomes difficult for the Amish schools to have water samples checked on a frequent basis. It was felt that the community offered the Amish schools little assistance in helping them to comply. Also, food items prepared in private kitchens in Amish homes are sold along the roads during vacation time. While there had been no reported cases of food poisoning or related problems from these food items, there was concern that problems could develop. With the quantity of these food items being sold and without public health department approval, a dangerous situation could develop.

Conclusions

The purpose of the state initiative sponsored by the public health department was to identify the primary health needs in rural areas so that the appropriateness of existing programs and services could be determined and the development of new programs and services could be planned. Specific to this county was the comparison of Amish and non-Amish families.

A study of this type has both practical and theoretical relevance. Numerous practical benefits resulted—some of a more critical nature than others. The lack of cooperation between biomedical providers and the Amish community required immediate attention. The county health officer, county nurse, and a health needs assessment task force discussed these findings at length to try to develop mechanisms for better communication and coordination between the Amish community and biomedical providers. Two specific programs/services were developed. A prenatal clinic, operated by the public health department, was established to provide services to the Amish as well as others in need in the county. The county nurse had developed a positive relationship with many of the Amish church elders in the county and could serve as the liaison between the Amish and the physicians. Also, through the public health officer, a few of the local physicians agreed to work with Amish families who had “sick babies” in non-hospital births with midwives so that they would be able to receive care in the county. The success of either of these services is yet to be determined; however, their establishment is a milestone in and of itself.

Reported lifestyle in this rural farm community included many health risk factors associated with primary causes of death. Many families reported members who smoked or did not exercise. Amish families ingested animal fat and salt on a frequent basis. This information can be used for the better targeting of public education programs, but it must be recognized that these health risk

factors are so much a part of the context of rural life that behavioral change may be difficult to accomplish.

It was interesting to note that even in a small, rural, "gemeinschaft" community such as this county, many citizens were unfamiliar with community leaders, community issues, and members of the Amish subculture who were literally their neighbors. Many were unfamiliar with the public health department and its services. As a result of this study, increased awareness of public health and county health problems developed.

Theoretically, it is significant to find that many people with health problems and concerns do other things beside consult a physician—not to the exclusion of physicians, but in combination with their biomedical treatment. Most families (89%) reported having at least one family member who had seen a physician in the office in the past year; therefore, use of alternative therapies or providers augmented but did not replace physicians. However, use of self-treatment and other alternative therapies such as over-the-counter drugs, vitamins/minerals/herbs, exercise, modified diet, prayer, and chiropractic manipulation were practiced by significant numbers of people. This suggests that use of alternative therapies may help to explain previous findings in the literature which demonstrate the lower use of physician services in rural areas.

The Amish/non-Amish comparisons supported the work by Hostetler (1980) in that Amish families used physician services and that they also used many providers and therapies which are alternatives or marginal to formal biomedical care. It is interesting to speculate about why the Amish reported greater satisfaction with available health services than their non-Amish counterparts, especially considering their use of a more diverse set of providers, sites, and therapies. Are these findings a result of different perceptions of the composition of the health care system or different experiences with the health care system? Future research should explore this question.

A study of this type is sociological practice "in practice." It applies sociological theory and methodology to a real life situation to effect positive change—improved public health in rural areas. Several implications for sociological practice are evident in this study. First, applied sociology does not always lend itself to rigorous research methodology and frequently requires a less sophisticated level of analysis. The difficulty of gaining access to the Amish community required considerable thought, a measure of creativity, key contacts in the community, and additional data collection time. Research methodology may need to be modified, as in this case, and potential effects and biases resulting from these modifications must be examined. Further, analysis of the data must satisfy the needs of the funders of the research. In this study, frequencies and contingency table comparisons between Amish and non-Amish families on

selected health factors were required. Public health officials were interested only in identifying problems to better target programs and funding.

Applied sociologists must be careful to capture all data in studies of this nature. Quantitative results are important, but anecdotal comments also can provide valuable information and insights. As in this study, the results of the survey questionnaire were informative, but the occasional comments offered by respondents about the lack of cooperation between biomedical providers and the Amish community were extremely important information in determining the most critical public health problems.

Applied sociologists and funders of their studies must recognize that problem identification does not automatically translate into positive change. Amish families may eat too many animal fats and too much salt, but appropriate intervention would mean a change in their religious beliefs and social structure. Agriculture is the basis of this structure. Folk medicine is a central component of their culture; therefore, having all babies in a hospital and not using midwives would mean significant changes in their sociocultural system. Research results must be examined within the sociocultural context of the study. Some problems may be mutable while others are not.

In summary, sociological practice can play an extremely important role in examining health issues. This study provided information which served as a basis for improved public health services in an attempt to improve the health status of a particular population.

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