A Rural Primary Health Care Service in Israel—Some Measures of Utilization and Satisfaction

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Synopsis

Measures of use and satisfaction within a rural health service in Israel were surveyed in a study of the anonymous responses to a questionnaire from 110 mothers of children 14 years of age and younger in two agricultural villages. The majority of mothers expressed satisfaction with the health service, although there were notable reservations about the availability of certain services. Differences were detected between the reasons mothers recorded for initiating contacts with the medical team and the actual day-to-day experience of the health team members. Satisfaction with the service was associated with the length of the waiting time to see the physician, the perceived sufficiency of time the physician spent on the examination, and awareness that the physician was on call after clinic hours for the survey population. It was also found that the combined hospital use for the populations of 10 surrounding villages was almost twice that of the study villages.

The findings are discussed in the context of both the immediate impact on the health service studied and the wider implications for primary health care in Israel. These include an identification of the health service with the physician and the potential medical and economic benefits of continued responsibility for care after clinic hours.

STUDIES OF CONSUMER SATISFACTION with health care in rural areas have been differentiated from those that examined health care in urban areas by several factors. Among them have been highly dispersed populations, shortages of physicians, the paucity of group practices, and the lack of adequate financing mechanisms (*1–3*). Such conditions lead to unstable health care delivery systems, and consumers' use and satisfaction with the system are difficult to evaluate. In Israel, however, widespread enrollment in comprehensive health insurance plans facilitates the examination of these aspects of health care delivery in rural as well as urban areas.

This study within a rural population in Israel; was undertaken to investigate some attitudes and satisfactions of patients toward their local health service provided by Kupat Holim, the sick fund (insurance plan scheme), of the Israel General Federation of Labor. The major impetus behind the study was the desire of the health team concerned to obtain feedback about the service that they provided and to identify possible deficits that could be rectified at the local level. A secondary stimulus was the wish to accumulate data that could be used for comparison with findings from other rural settings in Israel served by different models of primary care.

Background and Methods

Kupat Holim is the largest medical insurance plan scheme in Israel, encompassing more than 70 percent of the population. Its health care coverage is roughly similar to that of a prepaid group practice in the United States. For a monthly premium, comprehensive medical care is provided either directly through the sick fund itself or indirectly through contracts with government or voluntary agencies. All visits to the physician are free of charge and there are few co-payments.

A typical urban Kupat Holim clinic is open 6 days a week and serves a population of about 8,000. In rural areas, three basic health care models exist. In the first, a physician lives in the service area and cares for the people living in several surrounding agricultural settlements by holding office hours in small clinics situated in the villages. The physician may or may not offer an after-hours on-call service for the population. In a second

Table 1. Distribution of mothers by ethnic background, two study villages, Israel

Ethnic background	Village A		Village B		Total	
	Number	Percent	Number	Percent	Number	Percent
Yemenite	42	64.6	0	. . .	42	38.5
Moroccan	23	35.4	16	36.4	39	35.8
Cochin	0	. . .	12	27.3	12	11.0
Ashkenazi	0	. . .	9	20.5	9	8.3
Other, oriental	0	. . .	7	15.9	7	6.4
Total	65	100.0	44	100.0	109	100.0

model, the physician may or may not live in a settlement for which he also provides the local primary medical care. The physician also works as a staff member of a clinical department of a nearby hospital, the so-called integrated model. The third model consists of a central regional health center, situated in a town or a larger settlement in which several physicians practice. Patients from the surrounding area must come to the health center for treatment. Again, an on-call service may be offered or not.

In any model that does not operate an after-hours service, patients must rely on the emergency room of the nearest hospital or on a centrally located Magen David Adom (first aid) center if they need to see a physician. With rare exceptions, physicians in all three models are not directly responsible for hospital care of their patients, once referral for hospitalization has been made. In rural Israel, no settlement is more than 20–30 miles from an acute care hospital facility, except for the Negev desert region. Transportation to hospitals in emergencies is provided by the Magen David Adom centers, which maintain a network of ambulance services throughout every region of the country.

In our study the physician concerned, who held a specialty in family medicine, worked according to the first health care model and was on call after hours. In addition, the Kupat Holim nurse lived in one of the villages in the service area and was available for consultation after hours for its residents.

Two rural villages were selected for this study, both located about 20 miles from Jerusalem. All the inhabitants were insured by Kupat Holim. The villages were settled in the early 1950s by immigrant Jews from non-Western countries. Village A, with a population of about 700, had two distinct ethnic groupings of Moroccan and Yemenite origin. Village B had a more diverse population of just over 350 persons, including a group of Jews from Cochin in India, and some Ashkenazi (Western) Jews who settled there more recently. Only 6 percent of the combined populations were aged 65 or over, as opposed to a figure of about 10 percent for the Israeli population as a whole (*4*). Only 50 percent of the households in each village had a telephone when the study was conducted in 1981.

The Kupat Holim physician visited the clinic in Village A three times a week during morning hours and the clinic in Village B twice a week in the afternoons. The physician lived on a Kibbutz (collective settlement) situated midway between the villages, about 2 1/2 miles from each. Patients could attend all clinic sessions on a walk-in basis, there being no appointment system in operation. There was thus no need for patients to inform the physician of any visit in advance.

A Kupat Holim nurse was also present for several hours at each village clinic 5 or 6 days a week including the physician's consulting hours. Each clinic was equipped with a small laboratory for basic blood and urine tests, and a portable electrocardiography machine was shared between the two clinics. A public health nurse, employed by the Ministry of Health, visited each village about twice a month, mainly for preventive child-care work, and a social worker employed by the local regional council visited the villages at about the same frequency to see clients in their homes. Although forming a de facto part of the local health team by informal agreement, the public health nurse and the social worker, as indicated, were not on the payroll of Kupat Holim and remained both professionally and administratively responsible to their respective employers.

All mothers in the village with children up to and including 14 years, 116 in all, were selected as the study population since this group was considered the most frequent users of the local health service facilities.

In the summer of 1981 a short, self-administered questionnaire containing 20 questions was distributed in each village by a representative of the respective village council, for completion by all members of the target population. The questionnaire, which had been previously subjected to a pretest in a rural settlement elsewhere, inquired into four areas of contact with the health services in the villages: visits to the clinic, awareness of the range of medical services available, accessibility of the

services, and satisfaction with the personnel who provided the services.

Results

A total of 110 questionnaires out of 116 (94.8 percent) were returned for analysis. The remaining questionnaires were not returned or contained unusable answers. The average number of children per mother-child unit was 2.6. The ethnic distribution of the mothers who completed the questionnaire is shown in table 1.

Utilization of services. Table 2, visits to the clinic by the study population, shows no significant difference between the two villages in the reported frequency of physician encounters even though hours of access during the day were different. The frequency of such visits, according to the physician's own records, is much higher than that reported for the questionnaires. For example, several women were known by the health team members to visit the physician more than once a week! There must, therefore, be a tendency to underestimate use of services by this part of the population.

The average number of physician visits per mother-child unit was calculated to be 16 visits, or 4.4 per person per year, within each such unit. The physician's records show that annual visits per person for the whole population at this period was, in fact, just over twice this number without any significant intervillage difference.

Table 3 shows the percentage of mothers in each village who reported that they would consult the physician first for a given list of specific problems which ranged, on the one hand, from those which might be defined as entirely medical to those which were purely social or psychological, on the other hand. The mothers seemed reluctant to consult the physician for other than ostensibly medical problems. This finding is again inconsistent with the physician's experience with this group of patients, and the implications will be discussed later.

Exceptionally, many of the women did admit that they would consult the physician about difficulties concerning relatives, 43.6 percent overall. The difference between the two villages on this question was statistically significant (χ^2, $P < 0.01$), although both groups gave what we considered high response rates. No other intervillage differences were statistically significant in table 3.

Awareness of services. Table 4, which sets out the knowledge that the mothers had about the variety of services and facilities available to them locally, indicates that the study population exhibited a high degree of awareness about only some of such services. The mothers were highly aware of the physician's availability. There was little awareness about the frequency of visits by the public health nurse and the social worker. While most mothers knew that there was a telephone in their clinic, paradoxically only a third of them knew what the telephone number was!

The most important finding from this section of the questionnaire, however, was that 93 percent of the mothers knew that they could turn to the physician for medical assistance outside of regular clinic hours.

Table 2. Frequency of visits by mother or children under 14 years, or both, two study villages (percentages)

Frequency of visits	*Village A (N=64)*	*Village B (N=44)*	*Total (N=108)*
Once a week	18.7	22.7	20.4
Twice a month	20.3	22.7	21.3
Once a month	31.2	27.3	29.6
Less than once a month	20.3	25.0	22.2
Never visit	0	2.3	0.9
Don't know	0	9.4	5.6

Table 3. Percentage of mothers saying they would turn to their physician for selected problems, two study villages

Problem	*Village A (N=64)*	*Village B (N=45)*	*Total (N=109)*
Raised temperature and breathing difficulties in child	87.7	91.1	89.1
Bed-wetting in 5-year-old	50.8	68.9	58.2
Difficulties with relatives	32.3	60.0	43.6
Child not progressing satisfactorily in school	13.8	15.6	14.5
Advice on vacation plan	12.3	11.1	11.7
Problems with neighbors	7.7	15.6	10.9
Persistent marital discord	4.6	11.1	7.3
Friction with parents	4.6	6.7	5.5

Table 4. Awareness by mothers of services and facilities available in two study villages

	Percent who answered correctly		
Question asked	*Village A (N=64)*	*Village B (N=45)*	*Total (N=109)*
Frequency of visits of—			
Physician	96.9	95.6	96.4
Public health nurse	30.8	46.7	37.3
Social worker	13.8	11.1	12.7
Type of physician specialty	25.4	33.3	28.7
Telephone in clinic? (yes)	96.9	84.4	91.7
Knowledge of the number?	46.9	11.1	32.1
Is physician available after hours? (yes)	92.2	93.3	92.7
Is nurse available after hours? (yes)	73.4	100.0	84.4

Accessibility of services. Table 5 shows the mothers' stated satisfaction with the frequency of the physician's visits to their village, as well as with those of the public health nurse and the social worker. Village A seemed quite content with the number of times the physician visited their clinic but Village B respondents significantly (χ^2, $P < 0.01$) less so. This finding is surprising since the physician in fact spent proportionately more time per person in Village B than in Village A. The time of day of the visits, rather than their number or length, may be the important factor in this response.

Almost half the mothers in both villages said they felt that the public health nurse did not visit often enough. Most of them had no opinion what the frequency of visits by the social worker ought to be.

The following table summarizes the mothers' reported waiting time at the clinic to see the physician, another important measure of accessibility to the service. The distribution, in percentages:

Waiting time (minutes)	*Village A (N=63)*	*Village B (N=45)*	*Total (N=108)*
No wait	0	0	0
1–10	6.3	6.7	6.5
11–30	38.1	48.9	42.6
31–60	23.8	17.8	21.3
60	25.4	26.7	25.9
Don't know	6.3	0	3.7

The mothers' perception of such waiting time is, however, not considered highly reflective of true waiting time, and these responses should thus be interpreted with caution. The influence of this factor on overall satisfaction with the physician is described subsequently.

General satisfaction. The mothers were generally satisfied with the health personnel who served the people in the two villages, as the following tabulation, in percentages, shows.

Village	*Number of respondents*	*Satisfied*	*Unsatisfied*	*No opinion*
Physician:				
A	65	75.4	20.0	4.6
B	45	84.5	13.3	2.2
Total	110	79.1	17.2	3.6
Nurse:				
A	65	68.8	26.1	3.1
B	45	91.1	8.8	0
Total	110	79.1	19.0	1.8

Satisfaction with the physician was high—85 percent in Village B, 75 percent in Village A. It should be remembered that, in these villages, the people are in a no-choice situation and have only one physician to turn to. Satisfaction with the Kupat Holim nurse was significantly higher in Village B than in Village A (χ^2, $P < 0.05$), and this response was most likely related to the fact that, at the time of the study, the nurse lived in Village B.

Most mothers felt that the physician spent sufficient time with them during visitis; indeed, a few even felt that he devoted too much time to them on occasion! The percentage distribution of the mothers' perceptions of time spent with the patient was as follows.

Time devoted to patient	*Village A (N=64)*	*Village B (N=45)*	*Total (N=109)*
Too much	6.2	6.7	6.4
Sufficient	75.0	86.7	79.8
Too little	14.1	0	8.3
No opinion	6.7	4.7	5.5

Factors related to satisfaction with physician. We looked at several factors covered in the questionnaire which we felt might be related to the mothers' measure of overall satisfaction with the physician. Three factors were found to be significantly related in this way: satisfaction with the visiting frequency of the physician, sufficient time spent by the physician during a visit, and the awareness that the physician was on call after hours. The probability values, with the two villages combined, follow.

Factor	*χ^2 test value*
Time spent with patient	$P < .02$
Waiting time less than 30 minutes	
Awareness of physician being on call	$P < .05$
Veteran resident	N.S.
Visit to physician twice a month or oftener	N.S.
Satisfaction with physician's frequency of visits	$P < .05$

Discussion

Although this study is a small one and limited in scope, it nevertheless represents one of only a few such studies undertaken so far in Israel which look at the primary health care system from a consumer's point of view (*5*). Many of the findings, however, are in general agreement with those of similar studies which have already been carried out in the United States (*6–9*).

Having formed an intimate acquaintance with the study population over 10 years of contact with them, the health team members concerned anticipated many of the questionnaire answers. Some, however, were surprising and totally unexpected. For example, the reported unwillingness to consult the physician for a problem with significant social or psychological overtones was in

Table 5. Mothers' satisfaction with frequency of visits by health care providers, two study villages (percentages)

Village	Number of respondents	Too often	Satisfied with frequency	Too seldom	No opinion
			Frequency of physician's visits[1]		
A	64	1.6	68.7	28.1	1.6
B	45	0	28.9	68.9	2.2
Total	109	0.9	52.3	45.0	1.8
			Frequency of public health nurse's visits[2]		
A	64	0	12.7	49.2	38.1
B	45	0	6.7	42.2	51.1
Total	109	0	10.2	46.3	43.5
			Frequency of social worker's visits[2]		
A	64	0	14.1	7.8	78.1
B	45	0	8.9	8.9	82.2
Total	109	0	11.9	8.3	79.8

[1] χ^2, $P > 0.01$.
[2] χ^2, not significant.

strong contrast to the health team's day-to-day experience with this particular population. We feel that this attitude represents a methodological error in the construction of the questionnaire. One explanation for the apparent discrepancy could be that a reason for turning to the physician may still be perceived by the mothers as having to be essentially a "medical" one, at least for initiating the contact. Only when the medical legitimacy of the contact has thus been established might other, less medical, matters perhaps be broached, although these may, in fact, be the most important determinants of the visit. It might have been better to phrase this question as "which of the following subjects have you ever discussed with the doctor in the course of a consultation with him?"

We took much care in this study to minimize any potential response bias on behalf of the participants. Not only were the questionnaire answer sheets anonymous, but their distribution and collection by a third party was intended to totally divorce the local health team from any association with the conduct of the study.

Health care in both villages was certainly identified with the physician. An awareness of, and to some extent an interest in, the activities of the public health nurse and the social worker was much less obvious from the questionnaire replies. Since the women surveyed constitute a prime target for both these services, this finding had immediate implications for the way that both these workers operated within the health team.

Reported satisfaction with the frequency of the physician's visits to the villages was by no means universally high, but we did not obtain sufficient additional data to analyze further this dissatisfaction, which was particularly notable in Village B. However, seen against a background of at least 16 visits per mother-child unit annually, or 4.4 visits per person per year in such units (and probably double this number is nearer the true one) this problem does not seem to be one primarily of the availability of the physician or access to him. For purposes of comparison, a similar mother-child unit in the United States would have 14 physician visits a year (*10*).

Some of the factors thought to be associated with physician satisfaction were not confirmed by our findings. These included shortness of waiting time and high utilization of the services. The time spent by a physician with a patient during consultation and perceived physician accessibility were factors significantly associated with physician satisfaction. However, the significant relationship discovered between such satisfaction and the awareness that the physician was on call after hours came as a surprise. Since such an association probably indicates a willingness to use such a service or a satisfactory experience with it in the past, we naturally wondered what effect such an on-call service might have on the overall after-hours use of other medical services, specifically use of the emergency rooms of local hospitals and associated admissions to hospitals. It is known that in the Jerusalem area about two-thirds of all visits to hospital emergency rooms are self-referrals (*11a*), and that the vast majority of emergency admissions to hospitals take place through emergency room referrals (*11b*).

We compared the hospital use statistics from Villages A and B for fiscal year 1980–81 with those of 10 other villages of similar ethnic and age structure in the same geographic area. We used unpublished data on hospital utilization from the Department of Services Development, Kupat Holim of the General Federation of Labor,

Tel Aviv. There was only one marked difference between the medical care provision in our villages and that in this second group. Our villages' after-hours care was supplied by the same physician who lived in the area, whereas the population of the other villages had to travel to a Magen David Adom station in a nearby town or to the nearest hospital emergency room if they needed to see a physician after hours.

Table 6 shows that, for both annual hospital days per 1,000 population and hospital admissions per 1,000 population per year, the 10 villages had almost double the use rates of those for the study villages. At the lower use rate, the 10 villages would have collectively used approximately 1,130 hospital days less than their inhabitants actually did. Since most of these admissions are emergency hospitalizations, we suggest that the principal reason for these large differences is related to the different on-call after-hours pattern in the two groups.

There are, obviously, important economic implications from this finding. Kupat Holim might profitably investigate this area further, since spiraling hospitalization rates and costs are a subject of increasing concern to the sick fund. Strengthening the net of on-call services available to rural and urban populations by the same physicians who provide the normal daily clinic service might prove to be a very worthwhile, cost-effective method of cutting hospitalization rates, particularly in areas where they are high.

From a more immediate standpoint, the health team has already made several changes in local level services as a result of some of the findings of the study. The times of the physician's visits to the villages have been rearranged so that both villages now have both morning and afternoon clinic sessions. The visits of the public health nurse to the villages have been increased, and her availability as well as that of the social worker has been enhanced by publicizing her presence more widely than previously in the village news sheets, on the village hall notice boards and in the village shops, in addition to notices in the clinics. The clinic telephone numbers have also been widely displayed.

In addition to regular advertisements in the village news sheets requesting suggestions for improving the village health services by its consumers, the physician and other members of the health team maintain closer contact than before with the village management committees so that the process of feedback initiated by this survey may be continued.

Conclusion

Findings in this study have shown that attitudes toward the physician and his availability are determinants of satisfaction with the health services. The findings also suggest that the public health nurse and the social worker were underutilized, perhaps due to their lack of availability; they visited so infrequently that their presence was scarcely known. A second reason for underuse may have been a lack of understanding of the functions of the nurse and social worker and an overemphasis of the physician as the source of health care. This premise is consistent with a reluctance to admit using the health services for other than strictly curative purposes.

Low hospital admission rates, as well as satisfaction with the primary physician, have been linked with continuous responsibility in after-hours care. As a result of this service, benefits to the health care organization have been demonstrated.

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Table 6. Comparison of hospital use by the population of two study villages and a similar rural population

Village group	Population	Per 1,000 population per year	
		Admissions	Hospital days
Villages A and B	1,050	70	444
10 similar rural villages	2,783	134	850
Israel, 1977[1]	4 million	154	986

[1] Approximate total for 1977, the latest year for this national statistic.

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Traffic Accidents and Minor Tranquilizers: a Review

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Synopsis

Minor tranquilizers, including the benzodiazepines, have been found to impair driving skills such as hand-eye coordination and reaction time. Several studies have also demonstrated an association between minor tranquilizer use and traffic accidents; however, the association may be due entirely to more frequent alcohol use or to the underlying anxiety found in users of minor tranquilizers. Whichever the case, patients taking minor tranquilizers do have higher accident rates. It is recommended that physicians emphasize the possible risks of driving while using these medicines, particularly if used with alcohol.

In the United States, approximately 50,000 persons die annually in traffic accidents, which are the leading cause of death for both men and women between 5 and 35 years old. It has been estimated that one out of every two Americans will be involved in an injury-producing accident sometime in his or her life (*1*). Speeding, failure to use seatbelts, and consumption of alcohol are the major risk factors associated with traffic accidents (*2*). Drug intoxication, often illicit, has also been incriminated in the increasing mortality rates in the young. Because of widespread use and certain similarities to alcohol, minor tranquilizers, including benzodiazepines, have also been studied as a risk factor for traffic accidents.

Minor tranquilizers, which include nonbarbiturate sedatives and hypnotics as well as anxiolytics such as the benzodiazepines, are among the most commonly prescribed and utilized medications in developed countries. Skegg and coworkers found that 2.2 percent of a general practice population in England had been given a prescription for a minor tranquilizer within the previous 3 months (*3*). Dunnell and Cartwright estimated that 8 percent of adults in England had used a sedative, tranquilizer, or sleeping pill within the previous 24 hours (*4*). In the United States, Parry and coworkers found that 8 percent of men and 20 percent of women had taken a benzodiazepine or other minor tranquilizer within the previous year (*5*). If these medications cause traffic accidents, their ubiquitous use may be a sizable but little advertised public health problem.

Driving Skills

Authors of several studies of motor skills and attention span have ascertained deficits in persons given benzodiazepines (*6*). Tests of saccadic eye movements, hand-eye coordination, and reaction time have also been found to be abnormal in persons taking benzodiazepines (*7,8*).

Driving tests may be better measures of actual driving performance. In members of the police force in Basel, Switzerland, Kielholz and coworkers found no effect from 20 mg of chlordiazepoxide in five different driving tests (*9*). However, this dose did potentiate the negative effect of alcohol (blood concentration, 80–100 mg per dl). Studying 100 young volunteers 18–30 years old, Betts and coworkers found that chlordiazepoxide given in five 10-mg doses over 36 hours impaired several driving skills (*10*). Drivers were often unaware of any deficits in driving skills due to the medicine. Betts and coworkers found no interaction with alcohol in doses of .5 gram per kg.