

Health Care and Days of Disability Survey Koje Island, Korea

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요 약

巨濟 地域社會 開發 保健院은 농촌 지역에서 보다 효과적으로 종합적인 의료를 베풀기 위하여 세계 교회 협의회 의료 선교 위원회의 지원으로 1970년에 개원하였다.

시범 사업이기에, 사업의 효과를 여러 모로 평가하는 것이 필요하겠으며, 의료에 관한 연구도 그 중 하나라고 생각된다.

이 연구에서는 대조지역으로 프로젝트에서 가장 멀고, 교통이 제일 불편한 면을 택하였다.

월간 유병율은 일년 전보다 감소한 것을 볼 수 있었으

며, 치료율은 차이가 없었으나, 의사의 치료를 받은율이 증가하였다. 대조 지역과 비교하면 프로젝트 지역에서 보다 많이 의사의 치료를 받았다.

치료를 받지 않은 중요 이유로는 “별로 아프지 않아서”가 일년 전에 비해 증가하였고, “너무 비싸서”라는 이유가 감소하였다.

아직 사업의 효과를 평가하기에는 이르지만, 이 연구와 일년 전과를 비교할 때, 의료 수준이 높아진 것으로 보인다.

Introduction

The Koje Community Health Project was established in 1970 by the Christian Medical Commission of the World Council of Churches as an experimental model of an attempt to deliver comprehensive health care to a rural population.⁽¹⁾ Evaluation of the effectiveness of such a health care system was one of its purposes. This report is another one of the series^(2,3) evaluating various aspects of the project's effectiveness.

Official vital statistics are of limited usefulness in Korea due to under-registration of deaths and infant births. Moreover, the combination of the relatively small population used by the project (about 10,000 in its primary service area and 20,000 in its secondary service area) and Korea's relatively good rural vital statistics (death rate=8/1,000, birth rate=30/1,000 and infant mortality rate=50/1,000^(4,5)) means that using vital statistics as a measurement would require accurate annual surveys of every household in both the project's

area and at least two or three comparable control areas for many years to evaluate its total effectiveness (Appendix).

Therefore, it was decided to attempt to use “days of disability” as a measurement of the effectiveness of the project. The results of the first “days of disability survey” comparing a population sample from Hachung Myun, the project's primary service area, with a population from Iloon Myun, which is at the distant end of the island and difficult to reach from the project, are presented in this paper.

Method

Five villages in each myun (township) and 20 households from each village were selected at random. The 200 households in the survey were visited during the period November 19 to 26, 1971 by the project's trained public health nurse aides, supervised by the project's public health nurse.

The survey questionnaire for each household was administered by interview with the wife of the head of the household in most cases. Illness and health care patterns during the previous lunar month (traditional local calendar) were investigated.

Results

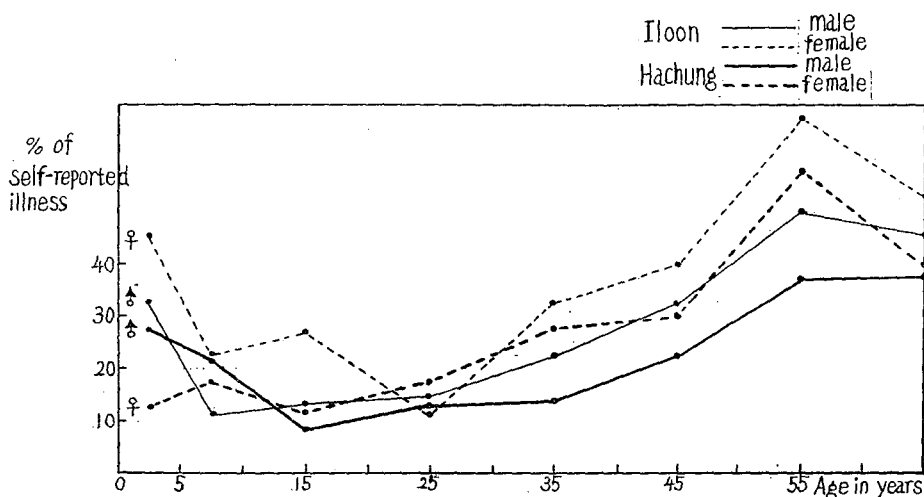
Self-reported prevalence of illness

The monthly prevalence rate of self-reported illness during the survey month was 21% in Hachung and 28% in Iloon. There was a significant difference in prevalence rates between two myuns

(chi-square, p less than 0.01). These are lower than the 36% reported by the Koje Project in 1970⁽⁶⁾ and the 42% reported by Im⁽⁷⁾ in Koje island. But the rate is a little higher than that of the National Health Survey Report⁽⁸⁾.

Female prevalence rates (Hachung 23%, Iloon 34%) were higher than that of males (Hachung 19%, Iloon 22%), and there was a significant difference between sexes and between myuns (chi-square, p less than 0.005). (Graph 1)

The age-adjusted illness rate was U shaped and increased with age except under 4 years old.



Graph 1. Self-reported Illness Prevalence during Survey Month

Table 1. Self-reported Illness Prevalence Rate

Age	Hachung			Iloon		
	No. of people	% ill	% ill age-adjusted	No. of people	% ill	% ill age-adjusted
0-4	64	20	20	62	39	39
5-14	187	15	15	173	17	17
15-34	123	16	18	148	21	19
35-54	120	25	24	106	34	36
55+	72	39	36	59	54	59

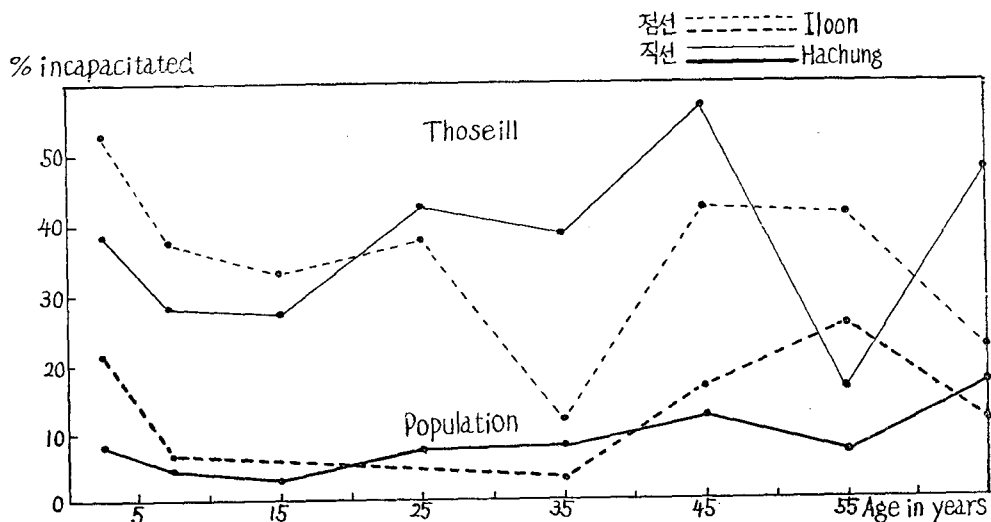
Diagnosis of illness, self-reported

Those who reported only one disease during the month were 18% in Hachung and 24% in Iloon. Three percent in Hachung and 4% in Iloon reported

more than one disease during that period. Thus, self-reported diseases were 24/100 person/month in Hachung and 32/100 person/month in Iloon respectively.

Table 2. Disease Classification by Age, Sex and Area

Disease category	Total %	Age					Sex		Myun	
		0-4 %	5-14 %	15-34 %	35-54 %	55+ %	M %	F %	Hachung %	Iloon %
1. Respiratory & ENT	6.2	14	6	3	6	8	5.3	7.1	5.1	7.3
2. Orthopedic & Injuries	4.0		1	6	6	10	3.5	4.6	3.9	4.2
3. Headache, Malaise, etc. without fever	3.9		2	3	6	12	3.5	4.4	4.4	3.5
4. Gastrointestinal & Parasites	3.5	4	3	2	4	6	3.5	3.5	2.7	4.4
5. Others not listed	3.0	4	1	1	4	8	2.2	3.7	2.3	3.6
6. Neurological & Sensory	2.0		1	2	3	6	1.6	2.3	1.1	2.9
7. Dermatological	1.9	4	3	1	1	1	1.6	2.1	2.5	1.2
8. Tuberculosis	1.2		2	1	1	1	1.1	1.2	0.7	1.6
9. Diarrhea, Typhoid, etc.	1.1	7	+			2	1.1	1.1	1.1	1.1
10. Cardiovascular	0.6			+	+	4	0.5	0.7	+	0.9
11. Gynecological & V.D.	+			1	+			0.7	+	0.5
12. Fever of unknown origin	+		+		+			+	+	+
13. Pregnancy										
14. Urorenal										
No. of people	1,114	126	360	271	226	131	547	567	566	548



Graph 2. Percent Incapacitated among those in the Sample Population and among those Ill

Incapacitation

Any condition which reduced an interviewee's normal activities defined "incapacitation". Restricted activity, bed disability, absence from school, and not playing are included.

Thirty six percent(36%) of those ill during the month were also incapacitated, both in Hachung and Iloon. This is about same rate as found one year before.⁽⁶⁾ Among the sample population 8% in Hachung and 10% in Iloon were incapacitated. The percent incapacitated among the sample population increased, by and large, with age except under 4 years old. In the last report⁽⁶⁾ 12% of sample population were incapacitated. Incapacitation rates among the sample population between the two reports was significantly different(chi-square, p less than 0.05). (See Graph 2)

About 50% of days of disability represent persons disabled for periods of 6 days or less and

about 20% represent periods of 3 weeks or longer which may be due to long term illness.

Table 3. Incapacitated Days

Days of Disability	Hachung (%)	Iloon (%)
Don't know	7	7
1-3 days	35	39
4-6	16	17
7-9	9	6
10-12	5	4
13-15	2	7
16-18		
19-21		2
22+	23	17
No. of people	43	54

The percent incapacitated by self-diagnosed illness varied among disease categories.

Table 4. The Percent Incapacitated by Illness Categorized as Self-Diagnosed

	Hachung		Iloon	
	People with Dx	Percent Incapacitated	People with Dx	Percent Incapacitated
Tuberculosis	4		9	
Respiratory & ENT	29	31	40	48
Diarrhea, Dysentery, Cholera, Typhoid	6	67	6	67
Gastrointestinal & Parasite	15	47	24	42
Dermatmatologic	14	29	7	
Neurological & Sensory	6	33	16	44
Orthopedic & Injury	22	36	23	35
Headache, Malaise etc. without fever	25	36	19	37
Cardiovascular	2		5	20
Urorenal				
Gynecological & V.D.	1	100	3	33
Pregnancy				
Fever of unknown origin	1	100	1	100
Others not listed	13	46	20	35

Treatment

Among those who were ill during the survey

month, 38% in Hachung and 39% in Iloon did not receive any treatment and only took a rest.

There was no significant difference in treatment rate between the two myuns in either the incapacitated or not incapacitated group.

Table 5. Treatment Rate

	Hachung	Iloon
Treated among those ill	62%	61%
among those not incapacitated	55%	50%
among those incapacitated	74%	81%

As for the source of treatment, about 40% to 70% of those who obtained treatment from any

source received it from drug stores. This is not so different from the last survey report⁽⁶⁾ for Hachung. (Yonsei University students, staff and faculty also reported themselves at a rate of about 40% as drug store users in obtaining treatment.⁽⁹⁾ Around 50% obtained treatment from physician in Hachung, where physician care is more or less accessible. In Iloon, where there is a limited medical practitioner, 12% got a physician's care when incapacitated, and at best 35% got treatment from a physician or a limited medical practitioner. There was no difference between males and females in patterns of obtaining treatment.

Table 6. Severity of Illness & Source of Treatment

	Hachung		Iloon		Sex	
	Not Incapacitated %	Incapacitated %	Not Incapacitated %	Incapacitated %	M %	F %
Drug outlet	43	44	71	60	58	54
Herb medicine		3	4	5	1	4
Limited medical practitioners	2	6	15	17	10	11
Medical Doctor (The Project)	50	47		12	25	25
Mainland source	5		10	7	7	6
Total	100	100	100	101	101	100

The average number of visits to obtain treatment from any source was a little higher in Hachung: when not incapacitated 2.2 visits were made in Hachung and 1.8 visits in Iloon, and when incapacitated 2.6 visits in Hachung and 2.3 visits in Iloon.

The amount spent to obtain ambulatory treatment during the survey month was also higher in Hachung: when not incapacitated, an average of 765 Won was spent in Hachung and 715 Won in Iloon, and when incapacitated 1,393 Won in Hachung and 1,101 Won in Iloon. Considering that the average number of visits was higher, and more physician care was reported in Hachung, it is probable that the amount of expenditure was higher in Hachung. Expenditures in the 100 to 500 Won and 1,000 to 3,000 Won ranges were frequent in

both areas, the former probably representing drug store use and the latter, physician use.

The total time spent to obtain treatment, including transportation and waiting time, was asked. Ferry, taxi and bus are available, but transportation is not convenient. Transportation is important in deciding whether or not to seek treatment. The average time per visit to obtain treatment from any source was not different between the two myuns: that is, 2.7 hours in Hachung and 2.6 hours in Iloon. Considering that drug stores were the main treatment sources, especially in Iloon, this is probable. The total time to obtain treatment from medical doctors or practitioners averaged 4.7 hours per visit in Hachung and 5.7 hours in Iloon.

"Have you been treated by physician during the

Table 7. Total Time Spent to Obtain Treatment

Hours	From any source		From physician	
	Hachung %	Iloon %	Hachung %	Iloon %
— 0.5	6	23		3
0.5— 1	18	26	15	7
1— 2	40	35	17	34
3— 4	17	13	21	10
5— 6	8		28	14
7— 8	6	1	6	3
9—10	2		4	
11—12	3	1		
13—14			9	28
Total	100	99	100	99

last 3 months?" was asked. (It is assumed that rural people would remember a visit to a physician with comparatively high reliability.) In Hachung 9.7% and in Iloon 6.2% said yes.

Their sources of physician care were the Koje project 75%, Pusan 9%, Government Health Center 7% and others 9% in Hachung. In Iloon, local medical practitioners served 62%, Pusan 24% Koje project 12% and others 2%.

Reasons for failure to obtain treatment

About 40% (38% in Hachung, 39% in Iloon) did not receive any treatment when they were ill during the survey month. The main reasons given for failure to obtain treatment were "not serious enough" and "too expensive" where "not serious enough" was predominant. Transportation problems made no difference which was contrary to the authors' prediction. According to the 1970 report ⁽⁶⁾, 48% did not obtain treatment due to "illness not serious enough" and 46% because "treatment was too expensive".

Discussion

In order to save time, money and unnecessary effort, variables such as occupation, education and size of family were not measured in this study.

Table 8. Reasons Given for Failure to Obtain Treatment

Reason	Sex		Myun	
	M (%)	F (%)	Hachung (%)	Iloon (%)
Not serious enough	77	67	81	55
Too expensive	21	27	18	36
Too difficult to come		1		1
Too busy				
No treatment available				
Treatment not good	1	3	1	5
Other	1	2	1	3
Total	100	100	101	100

The relationship of health care to such factors was analyzed in 1970 and statistical significance were tested in the last report ⁽⁶⁾. Education was closely related with health care practices. Occupation and family size did not affect the prevalence of illness, diagnosis or treatment significantly.

The composition of the sample population in this study was not statistically different from that of the last survey ⁽⁶⁾. Thus a direct comparison of the two studies is justified.

Illness prevalence as self-reported for a just prior one month period decreased significantly (chi-square, p less than 0.005) compared to the year before, but it is too early to distinguish a real decrease from underreporting, although the latter is not likely since the same interviewers from among project personnel did both surveys.

Incapacitation rates among the sample population between the two reports was significantly lower (chi-square, p less than 0.05).

There was no difference in the overall treatment rate from 1970 to 1971, but sources of treatment were changed. In Hachung, about 50% of care was by a physician while only about 35% of care was by a physician in Iloon. Drug outlet users were the same proportion in both reports; 60 to 70% were drug outlet users in Iloon in this survey. (Iloon was not surveyed in 1970). The main rea-

sons for failure to obtain treatment changed from "illness not serious enough" (48%) and "too expensive" (46%) to "not serious enough" (Hachung 81%, Iloon 55%), where "too expensive" had decreased to 18% (Hachung) and 36% (Iloon).

The amount spent to treat an incapacitating illness was 1,400 Won (400 Won = \$1) in Hachung during an average of 2.6 visits. The average payment per patient per visit for all areas at Koje project was 720 Won⁽²⁾. Thus this amount is thought to be comparable roughly to the amount of self-reported expenditures for treatment.

Actually people spent much time in obtaining treatment but do not complain about transportation. They seldom reported discomfort due to walking long distances.

Conclusion

It is too early to evaluate the effectiveness of

the Koje project. However, a series of continuous efforts to recognize the improvement of health care is anticipated. Through these endeavors, rapid feedback to the community people might be implemented and one role of this pilot project in community medicine would be fulfilled.

The illness prevalence rate has decreased and health care patterns appear to be changing in Hachung, the home township of the project, compare with the report of 1970. Also the health care patterns of the project differ from those of the control area, Iloon. Therefore, it would be worth while to study and record this progress continuously, so the day may come when the project can function as the cornerstone of community medicine in Korea and have served the people of the community.

Appendix

Estimated years of constant accurate data needed to detect difference between the project's area and the control areas.

	Project Area	Each Control Area
Population Surveyed Annually	10,000	10,000
Baseline:		
Births expected	300	300
Infant deaths expected	15	15
With a 10% improvement of project over controls:		
Births expected	270	300
Infant deaths expected	12.1	15

Number of years required to detect differences is:		
Birth rate		2.5 yrs
IMR		53.6 yrs

With a 25% improvement of project over controls:		
Births expected	225	300
Infant deaths expected	8.4	15

Number of years required to detect difference is:		
Birth rate		.36 yrs
IMR		9.5 yrs

$$N = \left(\frac{Z}{D}\right)^2 (p_1q_1 + p_2q_2)$$

N =sample size needed for both control and experiment

D =estimated difference in rate of control and experimental groups

p_1 =rate of experimental group; $q_1=1-p_1$

p_2 =rate of control group; $q_2=1-p_2$

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