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Spatial Distributions of Modern Western
and Traditional Chinese Medical Practitioners
in an Industrializing Chinese Town

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# SOCIAL RESEARCH CENTRE

## THE CHINESE UNIVERSITY
## OF HONG KONG

SPATIAL DISTRIBUTIONS OF MODERN WESTERN
AND TRADITIONAL CHINESE MEDICAL PRACTITIONERS
IN AN INDUSTRIALIZING CHINESE TOWN

Centre Paper

By

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ABSTRACT

The availability of Western-trained physicians and of Chinese herba-
lists in the 11 administrative subdistricts of an industrializing Chinese
community in Hong Kong are examined in relation to the population size and the
quality of residential housing in each subdistrict. In total, we found 92
physicians and 111 herbalists in 1971. The availability of physicians and of
herbalists in the various subdistricts are positively correlated, but relatively
physicians tend to be more unevenly distributed than herbalists. In general
the larger the population size and the better the quality of residential
housing, the larger would be the numbers of physicians and herbalists in
particular subdistricts. However, a partial correlation analysis shows that
the relationship between the quality of residential housing and the avail-
ability of herbalists may not be independent of the size of population.

Our findings suggest that the modern and the traditional medical
systems in a modernizing society may be in some ways similar. It is also
suggested that the numbers of herbalists and physicians in the community under
study may not be able to meet the medical demands of the large population there.

## SPATIAL DISTRIBUTIONS OF MODERN WESTERN
## AND TRADITIONAL CHINESE MEDICAL PRACTITIONERS
## IN AN INDUSTRIALIZING CHINESE TOWN*

The general process of modernization has been widespread in many nations around the World. Traditional folkways and practices are replaced by modern ideas and complex technology.[1] Being a salient aspect of human society, medicine and health in many nations are inevitably under the challenge of modernization. Because of its scientific base, modern Western medicine has indeed played an increasingly important role in many modernizing societies.

Take Hong Kong as an example. Modern Western medical practices are legally recognized and encouraged by Government, but not the traditional Chinese medical practices. Furthermore, in a recent survey of a sample of 702 adult household heads in an industrial town of Hong Kong, we find that the residents are much more likely to consult Western-trained physicians than Chinese medical practitioners.

Although modern Western medicine has become dominant, it has not yet been able to wipe out the existence of traditional medicine in many modernizing societies. In Hong Kong, for example, there were in total 2,317 Western-trained doctors in 1970;[2] but according to the survey in 1969 by

[1] For general discussions on the various aspects of modernization, Eisenstadt (1966), Levy (1966), and Ponsioen (1968) are recommended. For a comprehen -sive analysis of the problems of modernization in Asia, see Myrdal (1968).

[2] "Hong Kong's Medical & Health Services", Government Information Services, Hong Kong, July 1970.

the Chinese Medical Association of Hong Kong, there were then 4,506 tradi-
tional Chinese medical practitioners (including herbalists of various kinds,
bone-setters and acupuncturists) in Hong Kong. There are thus more tradi-
tional Chinese than Western-trained practitioners. As a result, in many
modernizing societies such as China and India, it is not unusual to find
the coexistence of two medical and health sectors, i.e., the modern Western
and the traditional local sectors. It is then of significance to ask: how
are the modern and the traditional sectors of medicine and health related
to each other in a modernizing society? The present report attempts to shed
some light on this issue by focusing on the spatial distributions of medical
practitioners in an industrializing Chinese community, named Kwun Tong, in
Hong Kong. Medical practitioners are selected for the present study,
because they are regarded as the core elements in any medical and health
system.

Kwun Tong, located in the east coast of Kowloon Peninsula, is a
newly developed satellite town. During the past 17 years, it has been
transformed from a remote region to an industrial-urban complex. It is
estimated that there are currently about 2,000 and some industrial
establishments there. Furthermore, according to the crude results of 1971
census conducted by Hong Kong Government, there were then in total 446,830
residents.

As shown in Figure 1, the district of Kwun Tong can be subdivided
into 11 administrative subdistricts; they are Ping Shek (PS), Jordan Valley
(JV), Kowloon Bay (KB), Ngau Tau Kok (NTK), Kwun Tong Resettlement Estates
(KTR), Kwun Tong Town Area (KTT), Sau Mau Ping (SMP), Cha Kwo Ling (CKL),

FIGURE 1

KWUN TONG

Areal Divisions

N

CHING SHEK

2.9.1

Jordan Valley

2.9.2

2.9.6

KOWLOON BAY

Ngau

Tau

Kok

Sau Mau Ping

2.9.3

2.9.4

Kwun

2.9.5

Kwun Tong Town

TONG R/E

Lam Tin

2.9.7

2.9.9

Cha Kwo Ling

2.9.8

Yau Tong

LEGEND

Lei Yue Mun
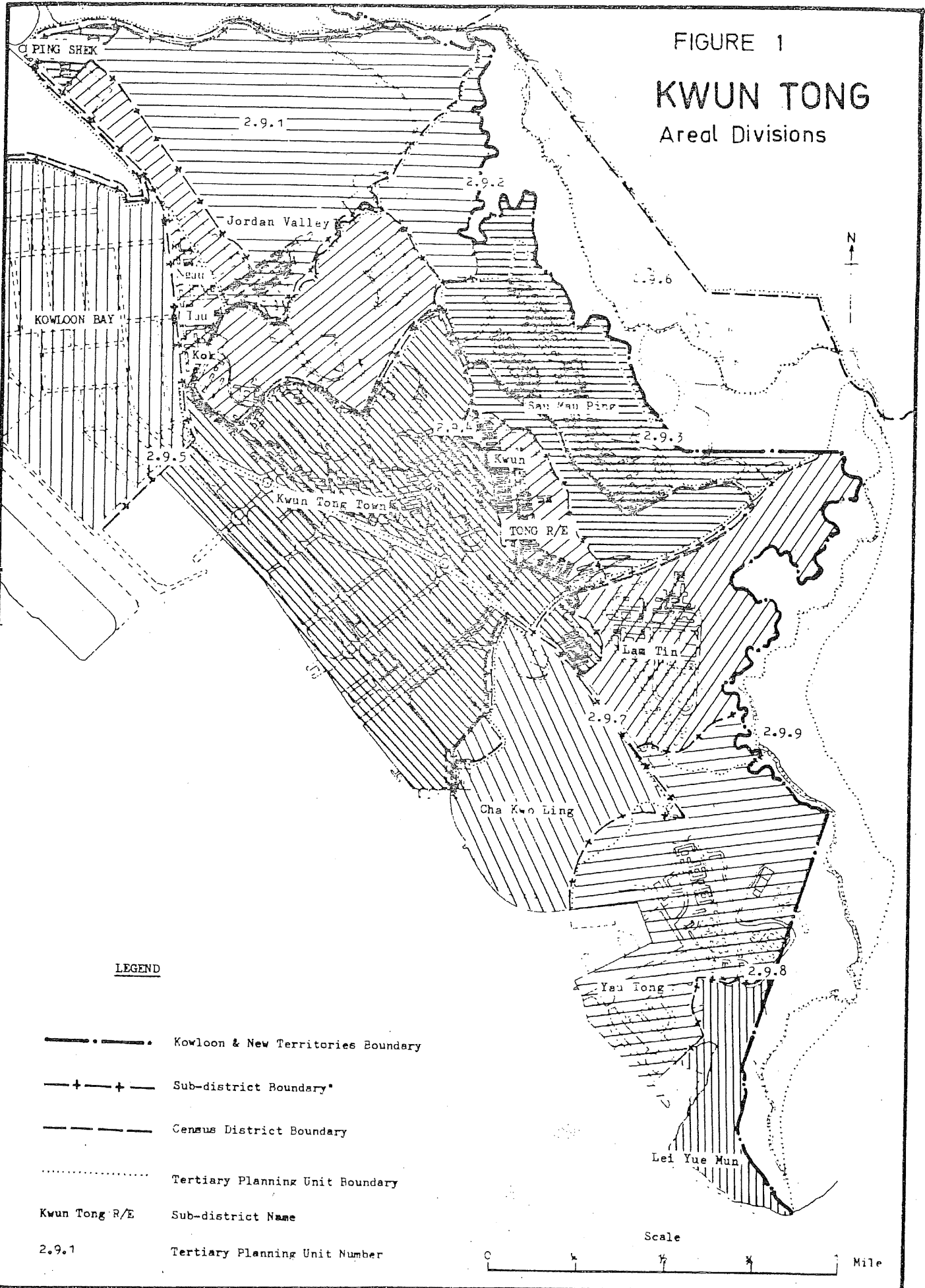
——·——·    Kowloon & New Territories Boundary

—+——+—    Sub-district Boundary*

— — — —    Census District Boundary

··········    Tertiary Planning Unit Boundary

Kwun Tong R/E    Sub-district Name

2.9.1    Tertiary Planning Unit Number

Scale

0        ½        1        Mile

* Division used by the SRC's Kwun Tong Study

Lam Tin (LT), Yau Tong (YT), and Lyemun (LYM).[3] Residents in these sub-districts are largely living in four major types of housing: private apart-ment buildings, low-cost housing, resettlement estates, and squatters or cottages. The distribution of residents among different subdistricts and different types of housing is presented in Table 1. It is oberved that the various subdistricts differ not only in terms of the size of population but also in terms of the quality or types of residential housing.

There exist two major sectors of medicine and health in Kwun Tong, namely, the modern Western and the traditional Chinese. The medical practitioners in these two sectors are spread out in the various sub-districts. The objective of this report is to investigate the effects of the population size and the quality of residential housing upon the avail-ability of Western-trained physicians and of traditional Chinese herbalists in the various subdistricts of Kwun Tong.

Hence, the interrelations among four characteristics of the various subdistricts will be studied. They are the population size (P), the quality of residential housing (H), the number of Western-trained physicians (W), and the number of Chinese herbalists (C). The interrelationships to be examined can be diagrammed as below:

$$P \longrightarrow W$$



$$H \longrightarrow C$$

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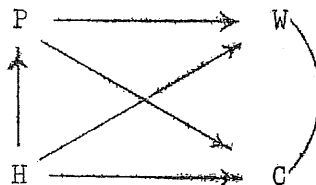
[3] For a discussion on the boundary of Kwun Tong and the way it was sub-divided, see Appendix A.

Arrows indicate the assumed causal directions, while the curve represents a correlation without assumed causal direction.

It is our impression that because of the economic opportunities and of the demand for medical care, medical practitioners tend to concentrate in populated and economically better off areas. We can therefore hypothesize that the larger the population size and the better the quality of residential housing, the larger would be the numbers of Western-trained physicians and Chinese herbalists in particular subdistricts. In effect, this major hypothesis and the above diagram imply a set of sub-hypotheses:

(1)   The larger the number of Western-trained physicians, the larger we would also find the number of Chinese herbalists in particular subdistricts; or vice versa.

(2)   The larger the population size, the larger would be the number of Western-trained physicians.

(3)   The larger the population size, the larger would be the number of Chinese herbalists.

(4)   The better the quality of housing, the larger would be the number of Western-trained physicians.

(5)   The better the quality of housing, the larger would be the number of Chinese herbalists.

(6)   The better the quality of housing, the larger would be the size of population.

In view of the sixth sub-hypothesis, we may ask: would the factors of population size and housing quality contaminate each other in their effects upon the availability of medical practitioners? In other words, the effects of population size may be due to those of housing quality; or, the effects of housing quality may be a result of differential size of population. To

examine this issue, we make up four additional sub-hypotheses:

(7)  The relationship between population size and the number of Western -trained physicians would be independent of the quality of housing.

(8)  The relationship between population size and the number of Chinese herbalists would be independent of the quality of housing.

(9)  The relationship between the quality of housing and the number of Western-trained physicians would be independent of the population size.

(10)  The relationship between the quality of housing and the number of Chinese herbalists would be independent of the population size.

The variables under study are measured on interval scales. We will therefore use the statistical model of product-moment correlation to measure the relationship between two variables. Its value ranges from -1 to +1, indicating the direction and strength of relationship. Partial correlation analysis will also be conducted so as to elaborate the relation -ship between two variables while controlling for a third variable. It should be underscored that since this study deals with the total population of residents, of residential-housing units, and of herbalists and Western- trained physicians, we will not carry out any statistical test of significance.[4]

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4  For an elaborate discussion on this point, see Selvin (1957).

## MEDICAL PRACTITIONERS

Let us first examine the availability of physicians and of herba-
lists in various subdistricts.[5] In September 1971, we conducted an enumera-
tion survey of all the medical practitioners in Kwun Tong. We found 92
physicians and 111 herbalists. There were then more herbalists than
physicians. This fact indicates that the prevalence of Chinese medical
services is no less than that of Western medical services in the community.

Of the 92 physicians, 50 were private medical practitioners while
42 were practitioners in the general clinics sponsored by Government or non-
governmental agencies. In the survey, however, we were not able to detect
the unregistered and illegal physicians. Hence all the physicians studied
are either registered, or have been screened and are permitted to practice
in registered clinics.

Of the 111 herbalists, 54 had independent offices while 57 had
their offices inside drugstores. By herbalists, we refer to those traditional
Chinese medical practitioners who primarily practice internal medicine. We
thus exclude the bone-setters, the acupuncturists, and the hemorrhoid
specialists.

Table 1 shows that in terms of the total number of medical
practitioners, the subdistricts can be ranked as this: KTT, NTK, LT, SMP,
KTR, YT, JV, CKL, PS, LYM, and KB. It is noted that 57.2% of the medical
practitioners are concentrated in KTT and NTK, the major industrial-
commercial centres of Kwun Tong. We find no herbalist nor physician in KB.

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[5] Hereafter, the term "Western-trained physicians" will be simply referred
to as physicians, while "Chinese herbalists" will be referred to as
herbalists.

NTK is the centre of herbalist service. 30.7% of all the herbalists are concentrated there. With regard to the Western physician service, however, KTT becomes the centre. 57.6% of all the physician practice there, while NTK has only 14.1%.

The standard deviation of the distribution of herbalists among the 11 subdistricts is 9.75, while that of physicians is 14.55. Hence, physicians are more unevenly distributed among the various subdistricts than are herbalists.

To what extent would the distributions of physicians and herbalists be associated with each other? We find that the correlation coefficient is .39. The relationship is thus positive and fairly strong. The two distributions commonly share 15% of the total variations. In other words, physicians and herbalists are then fairly likely to be concentrated in the same subdistricts.

Table 1.  Number of Medical Practitioners in Different
          Subdistricts of Kwun Tong, 1971.

| Subdistricts | Types of Practitioners | | |
| | Herbalist | Physician | N |
| --- | --- | --- | --- |
| JV | 7 | 1 | 8 |
| KB | 0 | 0 | 0 |
| NTK | 34 | 13 | 47 |
| PS | 2 | 3 | 5 |
| KTT | 16 | 53 | 69 |
| KTR | 15 | 1 | 16 |
| SMP | 14 | 7 | 21 |
| LT | 16 | 6 | 22 |
| CKL | 3 | 2 | 5 |
| YT | 4 | 4 | 8 |
| LYM | 0 | 2 | 2 |
| Total | 111 | 92 | 203 |

## POPULATION SIZE AND MEDICAL PRACTITIONERS

Let us examine the ways the distributions of herbalists and physicians are dependent upon the population size in different subdistricts. The correlation between population size and herbalists is .83, while that between population size and physicians is .69. Both relationships are strong and positive. The subdistrict population size accounts for 69% of the total variations in the distribution of herbalists, and 47% in that of physicians. Hence the larger the number of residents in particular subdistricts, the larger would be the number of physicians and herbalists. Relatively the availability of herbalists is more likely than that of physicians to be dependent upon the size of population in the various subdistricts.

To elaborate the association between population size and the availability of medical practitioners, we compute the ratios. We find that the ratio of all the medical practitioners (both herbalists and physicians) to the total population size of Kwun Tong is 1 : 2,201. The ratio of herbalists to the total population is 1: 4,026 while that of physicians is 1 : 4,857.

Considering the ratios among different subdistricts, we find that the subdistricts can be ranked as follows: CKL (1:831), KTT (1:1,456), LYM (1:1,568), NTK (1:2,006), JV (1:2,211), LT (1:2,366), KTR (1:2,783), YT (1:2,983), SMP (1:3,888), PS (1:4,564), and KB (0:2,206). Hence CKL has the best ratio. KTR, YT, SMP and especially PS are relatively deprived, and there is no medical practitioner serving the 2 thousand residents in KB.

If we consider the herbalists only, we note that CKL has the best ratio (1:1,384), followed by JV (1:2,527), NTK (1:2,773), KTR (1:2,969), LT (1:3,285), SMP (1:5,832), YT (1:5,967), KTT (1:6,277), and PS (1:11,410),

while KB and LYM have no herbalist. Hence according to the ratio of herbalists to the subdistrict population size, CKL, JV, NTK, KTR, and LT are better off than other subdistricts.

With regard to physicians only, we note that LYM has the highest ratio (1:1,568), followed by KTT (1:1,895), CKL (1:2,077), YT (1:5,867), NTK (1:7,253), PS (1:7,606), LT (1:8,760), SMP (1:11,663), JV (1:17,687), and KTR (1:44,528), while KB has no physician. Hence, LYM, KTT, and CKL are much better off than other subdistricts in terms of the ratio of physicians to the subdistrict population size.

As indicated previously, KTT has the largest number of physicians while NTK has the largest number of herbalists. Our ratio analysis shows that if we take into consideration the population size, they are not the most advantaged areas. The ratio of physicians to the population size in KTT is lower than that in LYM, while the ratio of herbalists to the population size in NTK is lower than those in CKL and JV.

## HOUSING & MEDICAL PRACTITIONERS

Table 2 presents the number of residents in different types of residential housing and in different subdistricts. Let us assume that private apartment buildings are the best type of residential housing, followed in sequence by the low-cost housing, resettlement estates, and squatter hut or cottages, and that they can be scored as follows: 3 = private apartment buildings, 2 = low-cost housing, 1 = resettlement estates, and 0 = squatters or cottages.[6] We can then construct an index of subdistrict residential housing quality as below:

$$\text{Index of a subdistrict} = \frac{\sum_{i=1}^{4} (P_i \times H_i)}{P}$$

where,    $i$ = housing types;
       $H_i$ = the score value of a particular housing type;
       $P_i$ = the number of residents in a particular housing type;
       $P$ = the total number of residents in the subdistrict.

In other words, the quality of residential housing in a particular subdistrict is indicated by the proportion of residents living in different types of housing.

Using the data in Table 2, we estimate that the index values of the 11 subdistricts are as follows: KTT = 3.49, PS = 3.0, NTK = 2.09, KTR = SMP = 2.0, LT = 1.99, JV = 1.87, YT = 1.72, and CKL = LYM = KB = 1.0 . Obviously the quality of residential housing in KTT and in PS are better than other subdistricts. KTT has a larger number of private apartment buildings, and PS is

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[6] Industrial buildings are excluded, since the primary purpose is for manufacturing rather than residence.

primarily a low-cost housing area. Conversely the quality of residential
housing in CKL, LYM, and KB are not as good as other subdistricts. There are
either resettlement estates or cottages.

To what extent would the availability of physicians and of herbalists
be dependent upon the quality of residential housing in various subdistricts?
The correlation between housing quality and herbalists is .40, while that
between housing quality and physicians is .70. Both correlations are positive
and strong. The variable of housing quality accounts for 16% of the total
variations in the distribution of herbalists, and 49% in that of physicians.
Hence the better the quality of residential housing, the larger would be the
number of herbalists and of physicians in particular subdistricts. Relatively,
the availability of physicians is more likely than that of herbalists to be
dependent upon the quality of residential housing.

Table 2. No. of Residents by Sub-district and Type of Land use in Kwun Tong, 1971.

| Type of Housing district** / Sub-district | Resettlement Estate | Low Cost Housing Estate | Private Apartment & Building | Cottage Area* | Industrial Zone | Total |
|---|---|---|---|---|---|---|
| PS | ---------- | 22,819 | ---------- | ---------- | ---------- | 22,819 |
| JV | 15,443 | ---------- | ---------- | 2,244 | ---------- | 17,687 |
| KB | ---------- | ---------- | ---------- | 2,138 | 68 | 2,026 |
| NTK | 48,683 | 24,501 | 1,405 | 19,191 | 333 | 94,293 |
| KTR | 44,528 | ---------- | ---------- | ---------- | ---------- | 44,528 |
| KTT | ---------- | 39,776 | 56,098 | 3,492 | 1,072 | 100,438 |
| SMP | 81,300 | ---------- | ---------- | 344 | ---------- | 81,644 |
| CKL | ---------- | ---------- | ---------- | 4,153 | ---------- | 4,153 |
| LT | 51,437 | ---------- | ---------- | 623 | ---------- | 52,060 |
| YT | 17,243 | ---------- | ---------- | 6,551 | 73 | 23,867 |
| LYM | ---------- | ---------- | ---------- | 3,135 | ---------- | 3,135 |
| Total | 258,814 | 87,096 | 57,503 | 41,871 | 1,546 | 446,830 |

* Including squatter, resite area, & resettlement area.

** PS = Ping Shek, JV = Jordan Valley, KB = Kowloon Bay, NTK = Ngau Tau Kok, KTR = Kwun Tong Resettlement, KTT = Kwun Tong Town, SMP = Sau Mau Ping, CKL = Cha Kwo Ling, LT = Lam Tin, YT = Yau Tong, LYM = Lyemun.

Source: Compiled by Y.K. Chan, on the basis of the crude results of 1971 census conducted by Hong Kong Government.

POPULATION, HOUSING, AND MEDICAL PRACTITIONERS

The correlation between the quality of residential housing and the size of population in the various subdistricts is found to be .58. It is positive and strong. Thirty-four per cent of the total variations are commonly shared by these two variables. Hence, the better the quality of residential housing, the greater would be the number of residents in particular subdistricts.

In light of the relationship between population size and housing quality, we may ask: would each of them be independently related to the availability of physicians and of herbalists in the various subdistricts? In other words, to what extent would the availability of physicians and of herbalists be dependent upon the size of population, if all the subdistricts were the same in terms of the quality of housing? Or to what extent would they be dependent upon the quality of housing if all the subdistricts had the same number of residents?

Controlling for the variable of housing quality, we find that the partial correlation between population size and herbalists is .81, while that between population size and physicians is .48. Both partial relationships are strong and positive. If all the subdistricts had the same quality of residential housing, the variations in population size would still account for 66% of the total variations in the distribution of herbalists, and 23% of that in physicians. Hence we confirm that the relationships of population size to both the number of herbalists and of physicians are independent of the quality of residential housing.

As reported, the zero-order correlations of population size to herbalists and physicians are .83 and .69, respectively. To compare these zero-order correlations with the partial correlations, we note that the

relationship between population size and herbalists is less likely than the relationship between population size and physicians to be affected by the quality of residential housing.

Furthermore, if we compare the partial correlations, we can find that population size has stronger independent effects upon herbalists than upon physicians.

Controlling for the variable of population size, the partial correlation between housing quality and herbalists is -.18, while that between housing quality and physicians is .51. In other words, if the population size in different subdistricts is held constant, the variations in housing quality would account for 3% of the total variations in the distribution of herbalists, and 26% in that of physicians.

The partial relationship between housing quality and physicians is weaker than the original zero-order correlation (.70), but it remains positive and fairly strong. We thus find that the relationship between housing quality and physicians is independent of population size.

As mentioned, the zero-order correlation between housing quality and herbalist is .40, which is fairly strong. The partial relationship, however, becomes very weak. It indicates that the impact of housing quality upon the availability of herbalists is primarily due to the variations in population size. We thus conclude that the relationship between housing quality and the number of herbalists in various subdistricts may not be independent of the size of population.

Furthermore, if we compare the partial correlations, we can easily observe that the quality of residential housing has much stronger independent effects on physicians than on herbalists.

## SUMMARY AND DISCUSSION

Two medical and health systems are coexisting in Hong Kong; they are the modern Western and the traditional Chinese. Since medical practitioners are the core elements of any medical system, the present study attempts to compare the two coexisting systems by focusing on the availability (i.e., the number) of Western-trained physicians and of traditional Chinese herbalists in the 11 administrative subdistricts of an industrializing Chinese community, named Kwun Tong, in Hong Kong. The availability of these medical practitioners is also analyzed in relation to the size of population and the quality of residential housing in each subdistrict.

The zero-order correlations among the variables under study can be summarized by the following diagram:
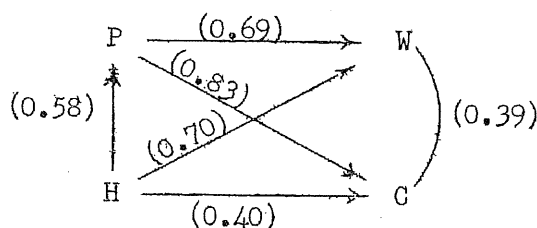


where,  P = Population size
        H = Quality of residential housing
        W = Number of Western-trained physicians
        C = Number of Chinese herbalists
        Numbers in parentheses = Product-moment correlations

A total number of 111 herbalists and of 92 physicians were found in the summer of 1971. Most of the physicians are concentrated in Kwun Tong Town Area, while most of the herbalists are in Ngau Tau Kok. Although the distribution of physicians and of herbalists in the various subdistricts are positively associated, physicians are in general less evenly distributed than herbalists. Then, what are the major factors that determine the availability of medical practitioners in the various subdistricts?

We find that the availability of physicians and of herbalists are
dependent upon the size of population and the quality of residential housing
in the various subdistricts. In general, the larger the number of residents
and the better the housing quality, the larger would be the numbers of
physicians and herbalists. Why? The demand for medical care and the
economic opportunities for medical practitioners are largely dependent upon
the number and the economic status of the residents in a particular region.
In order to meet the medical demand and to maximize the economic opportunities,
medical practitioners tend to practice in those areas where there are more
people and better housing.

Since population size and housing quality are found to be positively
related, we conduct an elaborate examination of their independent effects
upon the availability of medical practitioners. We find that the relation
-ship of population size to herbalists and to physicians are independent of
the quality of residential housing. The relationship between housing
quality and physicians is independent of population size, but the relation
-ship between housing quality and herbalists is not.

In light of the fact that the quality of residential housing may
not be independently related to the availability of herbalists in the various
subdistricts, our model or diagram should be re-constructed as below:

P ———————————→ W

H ——————————→ C
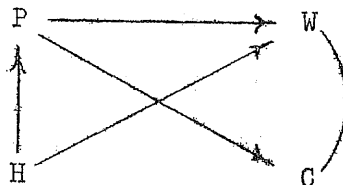
Two important findings remain to be interpreted. Why are herbalists more evenly distributed than physicians? and why does the quality of residential housing have very little independent effects upon the availability of herbalists? It seems that among the herbalists, the competition for patients is quite severe. As reported, there were more herbalists than physicians in Kwun Tong. Furthermore, in our recent survey of 702 household heads, we find that the respondents were much more likely to utilize the Western medical services than the traditional Chinese medical care. Since there are more colleagues but less support by patients, the competition among herbalists becomes severe. In order to reduce the competition, herbalists have to be spread out. As a result, they become fairly evenly distributed among the various subdistricts of Kwun Tong.

Population size seems to be more important than housing quality in determining the availability of medical services. A large population generates more medical demands and more economic opportunities, while the better housing may have better economic potential but not necessarily more medical demands. Since the competition among colleagues is so severe, herbalists may therefore be likely to choose the populated areas, instead of considering the housing quality. An additional reason may be that since (1) the rental values in better housing areas are generally more expensive than those in poor housing areas but (2) the economic incomes of herbalists are generally low, herbalists are therefore unlikely to concentrate in better housing subdistricts. As a consequence, the quality of residential housing may not have independent effect upon the availability of herbalists in the various subdistricts of Kwun Tong. In other words, the relationship between housing quality and the number of herbalists would become very low if the subdistrict population size is held constant.

Let us discuss some implications of the present report. On the
theoretical level, our findings suggest that the modern and the traditional
medical systems in an industrializing society are not entirely different.
In some ways, they are in effect very similar. In the present study, for
example, we find that the availability of the modern Western-trained
physicians and of the traditional Chinese herbalists in the various regions
of an industrializing Chinese community in Hong Kong are both dependent
upon the population size and/or the quality of residential housing. The
modern and the traditional medical systems may, of course, be similar or
different in many other ways, such as the social and professional attitudes
of medical practitioners, the relationships between practitioners and
patients, the pattern of health utilization by residents, and the organiza-
tional network among practitioners. Further studies on these important
problems are needed.

Our findings may also have practical implications. It has been
estimated that the Western-trained doctors to population ratio in Hong
Kong as a whole is about 1 : 1,720.[7] In the present study, we find that
the Western-trained doctors to population ratio in Kwun Tong is 1 : 4,857.
It should be underscored that according to our recent survey of the general
Western-trained medical practitioners in Kwun Tong, about 48.8% have joint
appointments in other districts of Hong Kong and are thus in effect providing
part-time services to the Kwun Tong residents. The ratio in Kwun Tong is
then actually smaller than it appears. It becomes very obvious that the
ratio in Kwun Tong is much lower than the ratio in Hong Kong as a whole.

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[7] "Hong Kong's Medical & Health Services", produced by the Government
Information Services in Hong Kong, July 1970.

Many people have claimed that Hong Kong is short of doctors. If so, the community of Kwun Tong is in a much worse situation. An increase of Western-trained doctors in Kwun Tong is definitely needed.

The shortage of doctors in Kwun Tong becomes more serious, in view of our finding that the Western-trained physicians tend to concentrate in better housing subdistricts. The residents in poor housing areas by no means have less medical demands than those in better housing areas. There exists urgent need for an increasing availability of Western-trained doctors in poor housing subdistricts.

The shortage of the traditional Chinese herbalists is also a problem in Kwun Tong. In 1969 the Chinese Medical Association of Hong Kong conducted an enumeration survey and found 5251 herbalists of various kinds (excluding bone-setters and acupuncturists) in Hong Kong. The herbalists to population ratio is approximately 1 : 1230. In the present study, however, we find that the ratio in Kwun Tong is about 1 : 4026. The ratio in Kwun Tong is hence much lower than that in Hong Kong as a whole.

The community of Kwun Tong is in a state of medical deprivation. Relative to Hong Kong as a whole, Kwun Tong not only has a lower ratio of Western-trained physicians to population, but also has a lower ratio of Chinese herbalists to population. It is essential for the town planners and the health workers to input more medical and health resources to the community in the forthcoming years.

APPENDIX A

THE BOUNDARY OF KWUN TONG

& ITS SUBDISTRICTS[*]

The boundary of the Kwun Tong District under study "approximates" that defined by the Government Secondary Planning Unit 2.9. We, however, excluded certain regions: the tertiary planning units (2.9.6) and (2.9.9), and also a part of the units (2.9.3), (2.9.4), (2.9.7) and (2.9.8). There are two major reasons for this decision. First, if the boundary between Kowloon and the New Territories is drawn, these excluded regions will belong to the New Territories rather than Kowloon. Second, (2.9.6) and the northeastern part of (2.9.3) and of (2.9.4) are hill slopes with very few inhabitants.

The district of Kwun Tong in our study is subdivided into 11 sub-districts on the basis of several considerations, such as the geographical location, the landuse pattern, the land lot division lines, the land marks (e.g., roads, buildings, water courses, or hills), and our judgement of the residents' district-identification. The subdistricts and their major physical components are as follows:

(1) Ping Shek: Ping Shek Low Cost Housing Estate;

(2) Jordan Valley: Jordan Valley Resettlement Estate, Jordan Valley Resettlement Factory, and Jordan Valley Resite/Class II Areas;

(3) Ngau Tau Kok: Ngau Tau Kok Resettlement Estate, Ngau Tau Kok Government Low Cost Housing Estate, Ngau Tau Kok Resettlement Cottage Area (Fuk Wah Tsuen), Kai Tak Mansion, and Ngau Tau Kok Industrial Area;

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[*] This Appendix is primarily based upon the research report "The Settlement in Kwun Tong" by Y.K. Chan (April 1972), Social Research Centre, The Chinese University of Hong Kong.

(4) Kwun Tong Town Area: The commercial and residential area around Yue Man
Square, Garden Estate, Wo Lok Low Cost Housing Estate, Kwun Tong Government
Low Cost Housing Estate, Ngak Yue Shan Class II Area, Hong Ning Road Class
II Area, and the industrial zone on the reclamation area between the water
front and Kwun Tong Road;

(5) Kwun Tong Resettlement Area: The Kwun Tong Resettlement Estate;

(6) Sau Mau Ping: Sau Mau Ping Resettlement Estate and the nearby scattered
cottages;

(7) Lam Tin: Lam Tin Resettlement Estate and the nearby scattered cottages;

(8) Cha Kwo Ling: Cha Kwo Ling Village, Sai Tso Wan Village, and Kwun Tong
Tsai Mining Lot;

(9) Yau Tong: Yau Tong Resettlement Estate, Yau Tong Village, Sam Ka Tsuen,
and Yau Tong Industrial Area along the water front;

(10) Lyemun: Lyemun Village, Ma Wan Village, Ma Pui Village, and Ling Nam New
Village;

(11) Kowloon Bay: Kowloon Bay Licensed/Resite Area, and the area with cottage
factories.

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