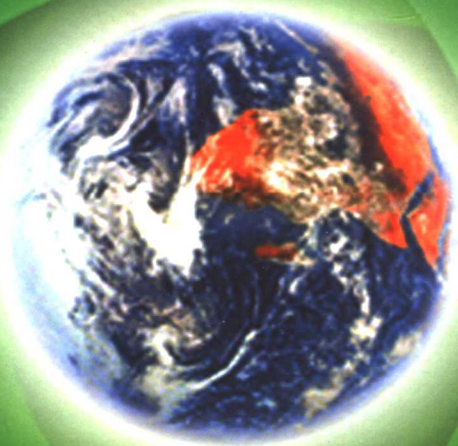
人口科学研究系列丛书

北京大学创建世界一流大学项目（985和211项目）资助丛书

中国人口的流行病学转变研究

The Epidemiological Transition In Mainland China

宋新明 著



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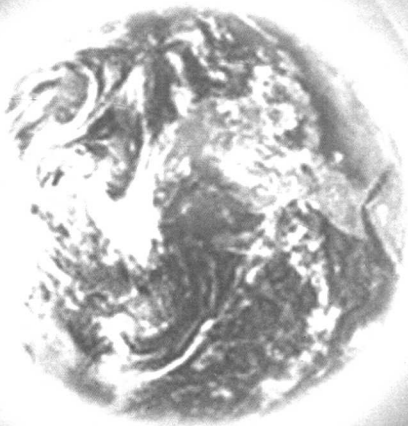

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Preface

For the past half century, China has been experiencing a complex transformation of its health condition and Chinese population has been growing older. These two related phenomena are putting unprecedented stresses on societies, because new systems of financial support, social support and health care have to be developed and implemented.

With an increasing proportion of the population surviving into adult and elderly age groups, the epidemiological profile of China increasingly reflects the diseases and health problems of adults other than those of children. In particular, chronic non-communicable diseases, instead of communicable diseases, are becoming more important causes of death. As elsewhere, this shift in cause-of-death structure has been referred to as the epidemiological transition.

In the past two decades, many groups of researchers, national institutes, and international agencies are becoming more and more interested in the concept of epidemiological transition as a useful explanation of the intense changes that have occurred in the health of populations. A lot of detailed studies on the epidemiological transition have been conducted mainly in developed countries, some New Industrializing Countries and Latin American countries. But, few studies in this field have been made in China.

Before 1980, the mortality studies of Chinese population had been relatively few. The main reason for this was the unavailability of reliable data. Since 1980, the mortality studies of Chinese population, conducted by both Chinese and foreign researchers, have increased rapidly. It has generally been agreed upon that with increasing life expectancy and population aging, the cause-of-death structure of the Chinese population has greatly changed and an epidemiological transition is already well underway in China. However, the epidemiological details of this process have remained obscure and many questions are awaiting answering. On one hand, mortality is a relatively neglected aspect of population studies. Demographic studies on mortality have largely concentrated on measuring mortality levels but seldom address

causes of death. On the other hand, although epidemiological studies on mortality tend to focus on causes of death and a considerable amount of work has been done, there were many limitations existing in the past work. Furthermore, most mortality studies lack in solid theory and most researchers analyze mortality changes by focusing exclusively on the empirical work.

This book derives from my Ph. D. thesis on the epidemiological transition in Mainland China. The study emphasizes the interdisciplinary nature of mortality analysis, in particular, the inter-relationship between the demography and epidemiology. It uses the epidemiological transition theory to examine the changing epidemiological patterns in China in the following dimensions: changes in mortality levels, in cause-of-death structure and in age and sex mortality patterns, by both time-series analysis and cross-sectional analysis. Time-series analysis is to estimate historical changes in mortality since the 1930s and cross-sectional analysis is to identify regional differences in present mortality levels and mortality patterns. Factors related to the epidemiological transition in China, some prospects for future mortality trends and implications of the transition are also addressed in the book.

A significant shift in cause-of-death structure has occurred in China during the past half century. In all parts of China, communicable diseases have decreased to a point where chronic non-communicable diseases have become leading causes of death. However, there are vast regional differences in the transition and different regions are at the different stages. The rise of importance of non-communicable diseases was largely caused by more rapid disappearance of communicable diseases (relative effect) and increased survival chance (demographic effect). It was also affected by rapid rise of death rates from some "affluence" diseases such as ischaemic heart disease, lung cancer, female breast cancer diabetes (absolute effect) especially in the later stages of the transition. The transition favored females over males, children and young adults over the old and rich over poor regions. The age distribution of death was shifting towards older ages, which was mainly affected by the cause-of-death transformation in the initial stages and by the delays of age at death from non-communicable diseases in the later stages of the transition.

Although the broad trend in China tended to be similar to that in developed countries, the process of the transition was quite different from that in developed countries. The transition was not just occurring later than developed countries but

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was following a different route in pace and patterns of changes in mortality level and causes of death, because of differences in the relative effects of various factors affecting mortality and their historical changes. Unlike developed countries, significant reductions of death rates from poverty-related non-communicable diseases lagged behind those of communicable diseases. During the shift in leading causes of death from communicable to non-communicable diseases in China, the proportion of deaths from some poverty-related non-communicable diseases first rose and then declined.

Demographic aging, partial success in control of communicable diseases, the growths of risk factors for chronic diseases, and great inequality of socioeconomic development are combining to produce increasingly complex health profiles and patterns of causes of deaths in China. The complexity is characterized by double burdens of old and new health problems and health inequalities. The old problems-communicable diseases have lost their predominance, but still maintain a major position in the epidemiological profiles. Furthermore, a larger percentage of deaths from non-communicable diseases are due to poverty-related ones. Meanwhile, the importance of some "affluence" diseases has increased. As the whole country moves along the path of the transition, health inequalities, particularly those reflected in communicable diseases and poverty-related non-communicable diseases become more acute.

China is becoming one of the most rapid population aging countries in the world. Therefore, epidemiological transition in China is likely to accelerate in the future. The health strategy changes are urgently required to reduce the impact of chronic non-communicable diseases while the efforts to control communicable diseases have to continue. At the same time, a priority should be given to poor areas to reduce health inequalities.

In the process of completing this study, we have been well supported practically and emotionally by many persons. This study could not have been completed without their support. Here, we would like to express my deep appreciation to all of them.

I must thank Prof. Iris Chi, Prof. Nelson Chow, Prof. Cecilia Chan in the Department of Social Work and Social Administration, Dr. Paul Yip in the Department of Statistics, the University of Hong Kong, and Prof. David Phillips in Asia-Pacific Institute of Aging Studies, Lingnan College, for their valuable comments and suggestions. Sincere appreciation must be extended to Prof. Chen Yude and Mr.

Zhong Jun in the Division of Medicine, Peking University and all other pers ons who have been involved in my data collection. Their support has been invaluable in my research. Part of our work presented in Chapters 6 and 7 of this book is to synthesize the writings of others both in the West and in China. My intellectual debts, therefore, will be evident, and the contributions of numerous writers are acknowledged.

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Abbreviations and Symbols

Abbreviations

AADR	Age-adjusted death rate
ASDR	Age-specific death rate
BEA	Bronchitis/emphysema/asthma
CDR	Crude death rate
ICD	International Classification of Diseases
IMR	Infant mortality rate
MDLT	Multiple-decrement life table
MOPH	Ministry of Public Health, People's Republic of China
NHSIC	National Health Statistics Information Center, Ministry of Public Health, People's Republic of China
PRC	People's Republic of China
RRI	Developed rural region, rural region I
RRII	Less-developed rural region, rural region II
RRIII	Poor rural region, rural region III
TLE	Temporary life expectancy
UN	United Nations
URI	Big cities, urban region I
URII	Medium-small cities, urban region II
WHO	World Health Organization

Symbols

e_0	Life expectancy at birth
e_x	Life expectancy at a particular age x
$l_{\alpha x}$	A multiple-decrement life table function, the number living at exact

age x who ultimately are expected to die from cause α out of 100,000 at birth, i.e. the number who will die from cause α above age x.

l_x A life table function, number living to age x out of 100,000 starting at age 0 (l_0).

${}_ne_x$ Temporary life expectancy from age x to x + n

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