

FROM BIOLOGICAL SCIENCES TO SOCIAL SCIENCES-A SHIFT IN MEDICINE

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ABSTRACT

Science is the study of natural process and biological science is a study of the organic process by which individuals are maintained. Social science is the study of the natural process by which personality is formed and cultural continuity maintained. Biological science proceeds by the formulation and testing of concepts, amending, enlarging, and replacing them as fact and experience, seen through the glass of wisdom. The social sciences consist only of attempts to apply known techniques of observation, experimentation, and logic to man's total behaviour as a rational and emotional animal, and to the groups through which he acts and relates himself to others. Today, many problems of concrete reality involve elements of both processes. In such case, either process may be abstracted for purposes of scientific study. Either process may give rise to problems in the other field. Thus, health today is not on the periphery of man's history but at or very near centre. Health was traditionally equated to the absence of disease. Such a narrow scope on health limited our understanding of wellbeing, thwarted our treatments efforts, and perhaps more importantly, suppressed prevention measures. To provide a basis for understanding the determinants of disease and arriving at a rational treatments and patterns of health care, a medical model must also take into account the patient, the social context in which he lives. The BPS Model of health and illness includes biological, psychological, and sociological interconnected spectrums, each as systems of the body. In fact, there is a dramatic shift in focus from disease to health, recognizing that psychosocial factors (e.g. beliefs, relationships, stress) greatly impact recovery, the progression of and recuperation from illness and disease. Thus, the

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social sciences may, because of the material with which they deal, be expected to develop broadening concepts dealing with man's relations with man, which when institutionalized may lead to a richer life.

Key words: social, science, public, health, medicine

INTRODUCTION

There is massive food grain production at the global level, yet men are hungry. There is an increasing progress in the science of bacteriology and immunology, yet the incidence of disease is increasing. There are plenty of medicines, yet people are dying of diseases.

Is technological advancement alone the complete solution? Can vaccines alone prevent the disease? Can medicines alone cure the disease?

“Where is the root cause?”

Successful application of medicine to individuals & groups involves more than mere scientific or biological knowledge; it involves an understanding of the behaviour of individuals & groups who live together & also share certain values of life. ‘The secret of national health lies in the homes of the people.’ Man is a social animal who lives in the complex of psychosocial factors influencing his health which includes cultural values, customs, habits, beliefs, attitudes, morals, religion, education, income, occupation, standard of living, community life and the social and political organization. The ways in which man thinks, believes and acts depend largely on the cultural background and type of society amidst which he dwells. The patient is no longer considered as one who is under strict laboratory control but an individual with personal idiosyncrasies, erratic habits, customs and beliefs reacting on his body and mind. Thus, the term ‘*social environment*’ denotes the complex of psychosocial factors influencing the health of the individual and community. The health status of the people can feed back into and influence factors relating to social structure which may in turn influence the predisposing variables, and therefore health.¹ It not only contributes towards causation of disease, it affects, its course and outcome not only in the individual but also in the community in which the patient lived. Hence, the theme common to public health and social sciences is human behaviour. Behaviour, at the

individual and societal levels, must be viewed as the "leading edge" of gene–environment interactions.

Behaviour is the bridge between biology and society, and the biomedical "causes" of disease and the socio-ecological "causes of causes" must be seen as two sides of the same coin. The factors that may influence public health behaviour include knowledge, beliefs, attitudes, values, skills. Human behaviour is the result of physical and mental factors interacting in complicated ways. Behavioral and social sciences research already has made significant contributions to health and health research, and even greater contributions are possible as scientists confront the many public health challenges that remain—from emerging threats (e.g., obesity and type2 diabetes, aging populations) to persistent problems (e.g., health disparities, continued tobacco use, toxic environments). These problems are complex, multilevel, multideterminant, and contextual, and they cannot be adequately addressed unless behavioral and social sciences research is integrated into a full systems model of health and disease that embraces a continuum from the micro biological level to the macro social level across the human lifespan and generations.^{2,3}

SOCIAL SCIENCES AND PUBLIC HEALTH

The word 'Social sciences' is hidden within the term public health. The term 'public health' has been used for several generations; the significance of the two words seems to have been only recently fully appreciated. It should always be realized that we are dealing here both with a product-'health' and a recipient- 'the public' and that the most complete knowledge and understanding of the one is pointless without corresponding information about and consideration of the other.

Two major types of changes within public health are going on in the modern world. "Public" changes and "health" changes. Our knowledge of biology, chemistry and physics and their medical sub-specialties help us find and use the proper immunizing agents to prevent disease, the right kinds of food to eat, the best sprays to kill mosquitoes and so on which are related to the health changes in the public.

The public changes that are so important in public health work are in many respects more difficult for us to appreciate. Most of us have limited backgrounds in the basic social sciences – sociology, anthropology, psychology, economics and political science that might help us understand better the people with whom we must work. Patients are social beings, and much of their response to disease and their behavior is socially determined. All behaviour is to some extent a reflection of social roles, and of the duties and expectations implicit upon them. Yet public changes are often of even greater importance than health changes. Thus, it refers to changes in life patterns of people but not the changes in art, language, technology. It is a change in the institutional and normative structure of society.^{4,5}

Many public health problems in essence are social problems, and vice versa. Medicine, therefore, has to change its character from a *biological* to a '*social science*' and its place from the fringes to the main stream of life. As a result of this new outlook, concepts of sociology are increasingly being used in the study of disease in human societies. Thus, the disease has to be viewed from a biological and social angle if it is to be prevented. The emphasis therefore is shifted from *cure to prevention* and from *individual to community*. Thus social medicine has become a 'collective science' which includes the facts and observations from many allied scientific disciplines, viz., sociology, social anthropology, social psychology as well as political science and economics, etc. All of these are concerned with proper understanding and assisting the individual to live in his family as a useful member of the society, with an optimum level of physical, mental and social well being.⁶

Social medicine is defined as the study of man as a social being in his total environment. It is concerned with the health of groups of individuals as well as individual within groups.⁷ The concept of social medicine is based upon realization of the following facts :

1. Suffering of man is not due to pathogens alone. It can be partly considered to be due to social causes (Social etiology).
2. The consequences of disease are not only physical (pathologic alterations due to pathogens) but also social (Social pathology).

3. Comprehensive therapeutics has to include social remedies in addition to medical care (Social medicine).

The phenomenon of disease causation in social medicine requires the investigation of the social, genetic, environmental and domestic factors as to their influence on the incidence of human disease. The term SOCIAL PATHOLOGY was coined by Ryle who found that different conditions of living are associated with disease causation and SOCIAL DIAGNOSIS as social, genetic, personal as well as environmental factors are probably jointly responsible for causation of diseases.

SOCIAL AND BEHAVIOURAL SCIENCES

The term 'Social Sciences' is applied to those disciplines which are committed to the scientific examination of human behaviour. These are economics, political science, sociology, social psychology and social or cultural anthropology. The term 'behavioural sciences' is applied to the last three, because they deal directly with human behaviour. Each of these disciplines deals with specific aspects of public health in the study of man –

1. Sociology : Sociology is the study of human relationship and of human behaviour for a better understanding of the pattern of human life. It is the science of behaviour of man in a society or group of human beings.⁸ Man's behaviour is affected not only by his physical and biological environment, to a much larger extent, by social environment represented by his family, society and government. The aim of sociology is to search for the pattern of relationships between people in order to pave the way for the betterment of individuals in relation to society.

2. Social psychology : It is concerned with the psychology of individuals living in human society or groups.⁸ It deals with the effect of social environment on persons/ individual psychology- their attitudes, perception, thought, opinion, motivation and learning. Every human being in a society has a mental need for love, security, understanding and freedom of expression and thought, etc. If such need is not satisfied, both his body and mind may be adversely affected and his behaviour will be adverse. Our body responds to the way we think, feel and act. This is often called mind/body connection.

Psychologists believe, there are five basic feelings : joy, fear, anger, grief, and love, with other feelings being variations on these five status. An emotion is what our body does with one of these feeling states. Positive emotional states are beneficial to health. On the other hand, arousing emotions (positive and negative) and rendering emotional support in certain situations may be helpful bringing a healthy behaviour in the public.

3. Anthropology

Study of physical, cultural and social history of man.⁸ Physical-evolution of man : Racial differentiation, inheritance of bodily traits, etc. Cultural : Cultural development of human groups. Social : It is the study of the development and types of human groups and its roles on human behaviour.

As long as distinct, indigenous people exist and carry forward their culture, anthropology exists but if this small group gets acculturated and if it “dissolves” in the larger group, anthropology becomes a part of sociology. Culture is the product of human societies which is transmitted from one generation to another through learning processes. It lays down norms of behaviour and provides mechanisms which secure for an individual his personal and social survival. In general, culture stands for the customs, beliefs, laws, religion and moral precepts, arts and other capabilities acquired by man as a member of society. Culture is immediately related to accepted social practices, many of which are in turn related to health and disease.⁹

4. **Economics** : Economics is the science dealing with efficient use of resources. Economics deals with production, distribution, consumption and ownership of resources, goods and services for the 3 basic (elements) essentials of (human) living, namely food, shelter, clothing. Scarcity or excess of these are found to affect human behaviour. A population necessarily depends on its economy, whereas economic development in turn requires a population and is pursued to serve that population’s purposes. The greater the population, the more will be the productivity. On the other hand, the greater the population, the more it must produce. Furthermore, the more a population grows, the broader and deeper must be its economic base. Any change in both affects each other.

One should frankly recognize that the potentials of increased production of food and goods by the application of new methods and technology meet the needs and wishes of more people, but there is no limit to development and production on a finite planet. Simultaneously, with just a fraction of the human and material resources available, policies must be related to overall socioeconomic development if countries with limited resources are to achieve the greatest possible benefits in health.⁹

5. Political science : Political science is the study of the whole political system. The political system is that set of interactions through which authoritative allocation of values – power, authority, conflict, consensus and the dynamics of decision making are made and implemented for a society. It deals with constitution, the government and the laws of the state which impose some sort of discipline on man's movements or behaviour.⁹

Government is the machinery through which the state functions. It is the political organization of the state. The particular political system that exists determines the role of Government in relation to health. In general, Government performs 2 functions:

- The first is political – there must be a forum of debate on issues that arise or exist and an appropriate instrument for solution. A structure must be provided to make possible the achievement of the aspirations and goals of society. The determination of the role of government in relation to health is an important part of the political function of government.
- The second general function is the provision of services and regulatory activities.

Science influences public health decisions and conclusions and politics delivers its programs and messages. So, science, public health and politics are not only compatible, but all three are necessary to improve the public's health. The progress of each area of public health is related to the strength of the other areas. The effect of politics in public health becomes dangerous when policy is dictated by ideology. Policy is also threatened when it is solely determined by science, devoid of considerations of social condition, culture, economics and public will.

CONCLUSION

The relationship between the social sciences and public health has been one of varying degrees throughout the past two hundred years. Early in public health, much emphasis was placed on the social and behavioral determinants of health. As the bacteriological paradigm gained currency, social approaches to health waned. The re-emergence of infectious diseases as contributors to mortality, in addition to the increase of chronic and degenerative diseases, have led to a changing focus in public health research, intervention programs, and policy. The social sciences, with theories focused on human behavior and structural constraints, along with methodologies that elicit in-depth contextual data on the social and cultural constructions of health and illness, offer a necessary complement to more traditional epidemiological approaches in addressing urgent contemporary health issues.

Public health is in a unique position in relation to man and his communities. Because of its opportunity and its activities, public health has an obligation to study the processes that affect man's behaviour. The role of public health stems from its peculiarly close association with man and the community. It is the opportunity for public health to add to the understanding of the human processes that make history. Historic events are due to the working in the macrocosm, the world, of forces that are also at work in the microcosm of our own communities. These forces can be isolated, analyzed, and understood with more precision in the microcosm. Public health deals with men and has a chance, perhaps, to understand men and thus to enable them to understand themselves. Thus, it needs a great deal more research to be able to translate the findings of biological investigation into social application. So, when a health problem is met, the social or public part of the situation should also be considered and treated. It is no longer sufficient to prescribe drugs and neglect the social factors in a given case.

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