

Contribution of Social Science Disciplines to make Public Health Interdisciplinary

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Abstract

The objective of the article is to explore the contribution of social science disciplines to make public health interdisciplinary. The term interdisciplinary is defined as "the synthesis of two or more disciplines, establishing a new level of discourse and integration of knowledge" (Bernard and Anita, 2006). Social science is the pillar of public health because they have significant role in shaping public health discipline. McKeown (1976), in his famous writing 'The Modern Rise in Population' demonstrated many evidences to show a pivotal role of social factor to enhance health status of the people. Public health as an interdisciplinary subject encompasses a number of social science disciplines like sociology, anthropology, economics, geography, demography, politics, law, along with environmental health, occupational health, epidemiology, biostatistics, nutrition, health education and mental health etc. Many social science disciplines like sociology, anthropology, economics, demography, geography, political science etc. carry a variety of methods and theories in the area of public health discipline and contributed to make public health interdisciplinary. Many developing countries have been experiencing the urban-techno-centric health approach ignoring the socio-economic status of the rural, poor people. Poor are victims of both communicable as well as non-communicable chronic diseases in recent days. It is essential to make appropriate intervention on this based on scientific research findings.

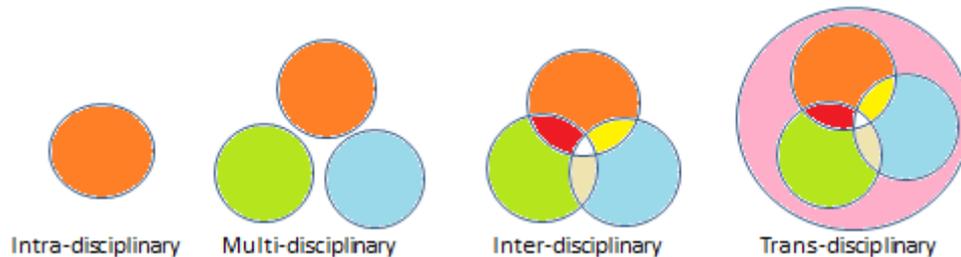
KEYWORDS: Interdisciplinary, public health, social sciences, medical anthropology, medical sociology, health economics, medical geography, health demography, health politics

Introduction

The word discipline is derived from the Latin word *disciplina* which means "to instruct, educate and train". Usually a discipline refers to a particular branch of knowledge. Oxford dictionary (2018), defines discipline as "a branch of knowledge, typically one studied in higher education". In this reference, one can say discipline as a separate academic subject. The various social science streams like sociology, anthropology; economics, political science, geography, psychology and culture etc. are examples of separate disciplines. The term discipline extends from intra-disciplinary (single discipline), multidisciplinary (many disciplines), interdisciplinary (among disciplines) to trans-disciplinary (across disciplines). Intra-disciplinarity is synonyms to the term discipline which is discussed earlier. Grossman (1979) defines the multi-disciplinarity as "the involvement of several disciplines to a common problem but there is limited interaction" (Cited from Bernard and Anita, 2006). The term inter-disciplinarity can be defined as "the synthesis of two or more disciplines, establishing a new level of discourse and integration of knowledge" (Bernard and

Anita, 2006). Similarly, the trans-disciplinarity is "a form of interdisciplinarity in which boundaries between and beyond disciplines are transcended and knowledge and perspectives from different scientific disciplines as well as non-scientific sources are integrated" (Flinterman et al., 2001, cited from Bernard and Anita, 2006).

Figure 1: Flow from intra-disciplinary to trans-disciplinary



The different concepts of disciplines were tried to be distinguished from the Figure 1. Here the intra-disciplinarity is denoted by a single entity. Multi-disciplinarity signifies that more than one disciplines are working separately to a particular issue. The inter-disciplinarity is represented by more than one disciplines working in integration to the certain issue. The trans-disciplinarity not only incorporates the integration of disciplines but goes beyond it involving the non-disciplinary entities also.

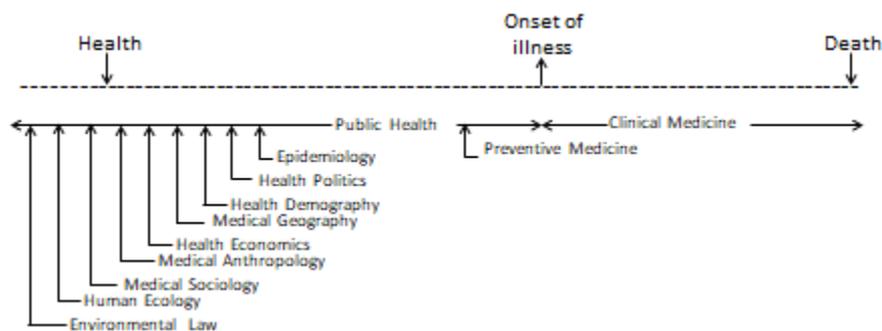
The concept interdisciplinary is the major concern of this paper. Grossman (1979) had very extensively defined interdisciplinary as "the joint, coordinated and continuously integrated research done by experts with different disciplinary backgrounds, working together and producing joint reports, papers, recommendations and/or plans, which are so tightly and thoroughly interwoven that the specific contribution of each researcher tend to be obscured by the joint product" (cited from Bernard et al., 2006). In inter-disciplinarity, experts of two or more disciplines sit together, share the ideas for a certain issue, integrate the ideas, prepare a common research approach, work together in the project, and make a common report so that the result gives separate concept which is quite different from the individual disciplines which makes a significant contribution in the society. Health psychology, for instance is a part of public health where two disciplines health and psychology integrate together and form a separate interdisciplinary entity. The research of health psychology has helped us to control many behavior related diseases. Smoking is one of the causes of cancer. It indicates that smoking is dangerous to health. We can make intervention programmes of non-smoking to get rid of cancer.

Public health is defined as "the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society" (Acheson, 1988; WHO). It indicates that the public health is a societal approach of making healthy life. The important public health approaches are epidemiology, interdisciplinary, operational and action research, health systems and policy research. The public health focuses on preventing disease as well as promoting health of the human population. Issues such as health services research, social hygiene, preventive measure, environmental health, epidemiology and healthcare systems research play important role in this area. Public health has a deep relationship with medicine because both medicine and public health have the same goal of making the people free from diseases though the approach is different. Similarly, it is interlinked with engineering;

the concept of public health engineering would be one of the best approaches to control the disease agents. Public health has multifaceted attachment with the other various disciplines including social sciences. Turshen (1989: 10) explained in a systematic fashion how public health is an interdisciplinary and which disciplines had contributed more to the discipline. Public health as an interdisciplinary subject which encompasses a number of social science disciplines like geography, anthropology, sociology, economics, demography, politics, law, including environmental health, occupational health, epidemiology, biostatistics, nutrition, health education and mental health etc.

Figure 2 presented below indicates the role of different disciplines in sequential manner to make public health interdisciplinary.

Figure 2: Interdisciplinary nature of public health



(Turshen, 1989, added more disciplines).

Many social sciences have medical specialties which have also been incorporated in public health. Public health affects much higher to us than does clinical medicine. Many of the public health measures operate using non-medical measures to affect health status of the community. The social and economic factors play a significant role on improving health status of the people. If it is effective, many of the illness can be controlled and many lives can be saved from deaths. Social science is the pillar of public health because it has significant role in shaping public health discipline in the present form.

McKeown (1976), in his famous writing *The Modern Rise in Population* demonstrated many evidences to show a pivotal role of social factor to enhance health status of the people. Medical measures had no such great contribution as did social development. The personal hygiene, sanitation, increase food production, nutrition, modern transportation had played much more significant role to reduce the mortality of the 18th and 19th century in European countries. Socio-economic development is very strong factor for improving the people's health status. If these factors are poor, health status of the people becomes miserable. Similarly, Nayar (1993) emphasized the interdisciplinary nature of social science in health. He proposed need of integration of the concept of social science of health by redefining and conceptualizing the existing concepts. He gave different conceptual coexistence with examples of supernatural-miasma, miasma-germ theory and germ-theory multi-causation over a time period is an example of interdisciplinary. Similarly he gave examples of blended interdisciplinary concept health-culture to integrate behavioural,

institutional, cultural, technological dimension of health. He further emphasized the importance of integrating social science theories to make them more meaningful. Benarji and Anderson (1963) conducted a famous research for pulmonary tuberculosis control programme. Their research was interdisciplinary because they incorporated the psycho-social interview as well as medical survey like tuberculin testing, x-ray and bacteriological examinations from which they came to a conclusion of a very useful modality of tuberculosis control programme. They proposed epidemiologically and economically viable, socially acceptable and need based programme to alleviate human suffering from TB at a certain level of awareness. Many of the developing countries including India employed this model for controlling tuberculosis epidemic in the period of the fourth quarter of 20th century. All these three writings reflect the inter-disciplinarity of public health with social sciences.

Objective

The objective of the article is to explore the contribution of social science disciplines to make public health interdisciplinary.

Methods

For fulfilling the objective, different literature reviews were thoroughly done and an interpretive approach of analysis was employed to it to make the article more comprehensive. Contribution of the six major social science disciplines to public health were tried to explore in the articles.

Discussion

Many social science disciplines like sociology, anthropology, economics, geography, demography, political science etc. carry a variety of methods and theories in the area of public health discipline and contributed to make public health interdisciplinary. Only role of these six social sciences disciplines on interrelationship with public health are briefly discussed hereafter.

Sociology and Public Health

Sociology is derived from Latin word *socio* means "society" and *ology* means "study". So sociology can be defined as the "scientific study of society". Organized modern medical sociology, as an interdisciplinary subject, emerged during 1950s-60s (Adler and Stone, 1980). Medical sociology is "the study of the social causes and consequences of health and illness" (Cockerham, 1995: 2).

Kendal and Marton (1958) gave the 4 focused area of the sociology, a. Social etiology and etiology of disease: on the basis of epidemiology across social groups, b. sociological study of treatment and recovery: including social support for illness, c. study of institutional organization of health, its components and how they are related and d. sociology of medical education. Gender violence which was earlier social science issue now is issue in public health also. Social causes of HIV transmission are now part of public health issues. Diseases such as tuberculosis, leprosy and sexually transmitted diseases are challenging issues. Illness is viewed not only medical

problems but also social and psychological problems. Both health professional and sociologists should work in an integrated manner to make the discipline strong.

The two concepts sociology in medicine and sociology of medicine are frequently used in medical demography. Sociology in medicine incorporates joint research, teaching and solving medical problems. Its focus is towards the medical sector. The sociology of medicine focuses on social factors like social values, norms, role, relationships, rituals, and beliefs of medical practice.

As an example of medical sociology, we can take Parson's (1951) sick role theory which describes the relationship between patients and supportive people. He mentioned specific right and responsibilities of the patients and others. A sick person has the right to exempt from illness, and sickness is not in the control of the patient. So, others should help the patient to get speedy recovery. Doctor's proper support and care to patient is also important. Similarly, the patient should have special social price to get cure. Provision of leave for government employees during sickness is an example of the application of his theory. But now the patients like HIV infected people and people with leprosy are not getting advantage of sick role because of lack of support from family members, society and doctors once at all or separately. Similarly, patient try to be well quickly since sickness is only for temporary. Parsons' sick role is significant for evolution of medical sociology. Many other scholars contributed in this subject to make it interdisciplinary. They can contribute on many areas such as health organization, behavioural study and utilization of service (Adler and Stone 1980: 20-26).

Anthropology and Public Health

Anthropology is derived from the Greek words *anthropos* meaning "man, human" and *logos* means "study". Anthropology is thus defined as a discipline of "infinite curiosity about human beings". Anthropologists seek answer from when, where and why questions regarding the various issues of the human evolution over time. Medical anthropology came into existence after the end of the Second World War. Medical anthropology refers to the study of health, disease, illness and healing across human societies. In other words, it describes, interprets and critically appraises the relationships between culture, behaviour, health and disease, and places health and illness in the broader context of cultural, social, political, economic and historical processes.' (Pool and Geissler: 2005). Not only health, disease and illness, but also sickness and suffering are included in medical anthropological studies.

The three major divisions of medical anthropology are a. ethno-medicine, b. epidemiology and medical ecology; and c. cultural contact and change. Ethno-medicine deals with the traditional medicine practiced by various ethnic or indigenous groups of peoples. They have strong attachment in ethno medicine and advocating the cultural issues on health to be properly addressed. It focuses on behaviour of healer and curer, diversity across behaviour and culture of the people, and coexistence of traditional medicine to western medicine. Epidemiology and medical ecology, which have many branches focuses on the distribution of illness by geography, cultural; adoptive mechanism of the community in environment, effect of health and illness on development of culture. Similarly cultural contact and change deals with how the

traditional and western medicine is going side by side for healing the same person (Adler and Stone, 1980: 29-32).

For effective treatment of a patient it is essential to have the proper knowledge of the community. A specific illness appears in specific time. Plague and many communicable diseases were epidemic earlier. Prevalence of communicable diseases is decreasing and now people die from degenerative diseases like cancer, heart disease, and stroke. HIV appeared nearly 4 decade back and is now pandemic. HIV infection is the main cause of unsafe sexual behavior and is obtained in marginal community of the society. Specific community may have certain diseases pattern in a society. The terms *susto* "hot cold theory" are examples of folk illness healing techniques in Latin American countries (Adler and Stone, 1980: 29).

Economics and Public Health

The English term economics is derived from the Greek word *Oikonomia* made from *oikos* means a "household" and *nomos* "management". Thus etymologically economics refers to "household management (*Understanding Economics*, n.d.)." Broadly, economics is the science of analysing the production, distribution, and consumption of goods. Health economics is a distinctive field of study emphasizing in particular the application of economic theory to practical problems in improving the use of resource to achieve the supply of effective and efficient health care (Lee and Mill, 1979). In other words, health economics is a branch of economics concerned with issues related to efficiency, effectiveness, value and behavior in the production and consumption of health and healthcare. The concept of health economics evolved in 1960s (Adler and Stone: 1980: 33).

The approach *investment in human capital* focuses on the disease cost and human investment is intermediate so that the people can earn more. Similarly *production function* focuses on efficiency of the healthcare system focuses the on the health of the people.

Economics is a discipline which has immensely contributed to make public health interdisciplinary. Many of the economists are busy in research in the area of public health so that the discipline is shaping its features. Health economics has role on expansion of health care centre, increase in health expenditure per person and globalization of health facilities. The urban centric high health infrastructure and manpower is questioned by many economists. (Adler and Stone, 1980: 32-36).

Many researcher of health economics are working in diverse filed of public health. Some are working in collection of basic statistics of health service system. Similarly some economist are pursuing research their research on health manpower. The 'economy of scale i.e. optimum ratio of health institution and health manpower is the research area of many scholars. The other areas of interest of research are medical practices, financing of health services. Similarly, some health economists are busy on their task of econometric model to develop model for wide market for medical care. Some are pursuing the cost benefit and cost effectiveness analysis. These are the contributions of the economist who are working on public health area. Economist has also though that all public health issues cannot be quantified.

Geography and Public Health

The word geography derives from the Greek words *ge* refers to "earth" and *graphein* means "to write:" So, literally, geography can be defined as writing about the earth (Pitzl, 2004). In other words, geography is the study of places and the relationships between people and their environments. Medical geography is defined as "the study of the impact of the natural and social physical environment on health" (Sage, 2006). It studies the effects of location and climate upon health. It aims to improve the understanding of the various factors which affect the health of populations and hence individuals. It is also called health geographic.

Geographer has its immense role to make public health interdisciplinary. They are busy in wide range of researches like geographical etiology of disease, geographical approach to control disease, resource mapping in health issues for planning and evaluation. Global mapping of cancer for instance have shown us the effect of industrialization on disease occurrence (Turshen, 1989: 12). Geographers have better expertise and understanding of mapping and had contributed in this area.

Hippocrates in 463 BC coined the term malaria which is made of the two words *mal* means "bad" and *air*, which thus indicates the bad air is the product of malaria agent. At that time, it was identified that malaria disease spread due to flow of the bad air from specific geographical area. Similarly, John Graunt showed the evidences of high mortality in urban than rural due to unhygienic environment and insufficient food among poor in the cities. Engels (2001) also observed poor sanitation in urban due to migration of the people from the rural area poor in urban slums of England. These evidences clarify that there is strong integration of health and geography reflecting the importance of medical geography (Sage, 2006). Geographic location has in this way is one of the etiologies of disease.

Demography and Public Health

The word demography is derived from the Greek words *demos* meaning "population" and *graphia* meaning "writing" thus the phrase demography refers to writings about populations (Cox, 2008)(Poston & Bouvier, 2010: 1). In other word, demography is the systematic study of statistics of human population. According to Hauser and Duncan "Demography is the study of the size, distribution and composition of population, changes therein, and the composition of such changes, which may be identified as natality, mortality, territorial movements and social mobility" (Cox, 2008: 3).

Many scholars have coined the terms *medical demography* or *health demography* to discuss interdisciplinary nature of health demography. National Institute on Ageing (1992) defines "Medical demography as the application of demographic concepts, models, and techniques to the analysis of the dynamics of morbidity and mortality at all ages ". Similarly, Pol and Thomas (1992: 1) defines health demography as:

The application of the content and methods of demography to the study of health status and health behavior . . .Health demography concerns itself with the manner in which such factors as age, marital status, and income influence both the health status and health behaviors of populations and, in turn, how

health related phenomena affect demographic attributes (Cited from Poston & Micklin, 2005: 787).

Scholars discussed the relation between demography and epidemiology in various ways. John Graunt for the first time explored the interrelationship of epidemiology and demography by demonstrating systematic regularity in vital events like births and deaths by age, sex, and territory. Demographers and epidemiologists have similarity to measure population health such as life tables, standardization of mortality rates, disability-adjusted life years (DALY), and so on. Both epidemiologists and demographers engage on fertility, migration, many population characteristics like age, sex, race, socioeconomic condition, religion and family structure to deal with health demography. The population aging and the widening health disparities across socioeconomic groups stimulated more engagement of both the two disciplines (Poston & Micklin, 2005: 789).

Health demographers are working both at macro and micro level to make the discipline vibrant. At the macro level, they involve in enhancement of measuring, estimating and monitoring mortality and morbidity while at the micro level, they engage on developing better conceptual model of determinants of health. Thus there is dynamic interplay between population and health patterns across countries (ibid: 804). Thus the discipline demography has made public health as an interdisciplinary subject in many ways.

Political Science and Public Health

Political science was derived from the Greek word *polis* which means city-state and the Latin word *scire* which means "science or to know". Therefore, political science means the "study of the city-state" (*Political Science*, n.d.). In Broader sense, political science is associated with the study of the state, government and politics. From 1979, the committee for health politics was formed to publish quarterly *Health Politics Bulletin*. Political science may take part in the macro level interaction between health seeker and health care provider. They focus on the access to health facility of the health seekers. They can measure the effectiveness of the health workers by the data related to morbidity and mortality. But it is criticized that there is lack of radical political critiques of the health service system. Political scientists have given little attention to health hazard.

There are three major eras of the health politics. Before 1960s there were few political scientists' research on public health, the issue was evolving at its *infancy*. After 1960 the discipline started shaping its model and the concept of health insurance rose at that time. This period is known as *period of health insurance* where many insurance schemes came into existence. After 1976, newly evolved third approach called *era of government regulation* or *holis* which means look upon health care as a system approach in which the role of the political scientists became important for the holistic analysis of the health system. Before this, there was no any system analysis in public health research. Thus, the role of the political scientist is clear in the public health and political science has contributed public health to make it interdisciplinary.

Though political science has no long history of working on health problems, political scientists have been actively working in the sector of public health. Many universities

had offered specialized health courses in political science departments across countries. Political scientists are the social advocate to address the proper health facilities to the people. They can study, assess the government financing in health sectors. The health cost is a global burning issue where the government role should be properly studied. Political scientists have brought many research outcomes about the resource distribution in different sector to evaluate their rationality. They focus on policy of human resources that the government has made (Adler and Stone, 1980: 36-41).

Conclusion

Public health is an interdisciplinary in nature. Along with other numerous disciplines, many branches of social science disciplines, such as sociology, anthropology, economics, geography, demography and political science, have contributed public health in various ways to make it interdisciplinary. Many social sciences for instance sociology and anthropology are themselves interdisciplinary. New innovative social science researches on public health makes this discipline stronger. But social scientists often lack of proper fund to conduct research and sometimes social sciences are blamed as stagnant discipline.

There are multilayered health-inequalities in many developing countries. Caste, class and gender based inequality in health system and health service system are widespread in developing countries like India. Many developing countries have been experiencing the urban-techno-centric health approach. Rural people have no access to proper health facilities. These countries have devastating situation of double burden of disease i.e. communicable disease for instance tuberculosis, malaria in one hand and the chronic degenerative diseases such as coronary heart diseases, stroke, sugar, cancer on the other. Poor are victims of both types of diseases in recent days. The behaviour of the people is vital for many communicable as well as degenerative diseases. So, it is essential to make appropriate intervention programme based on research findings. Social scientist should play an important role in it.

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