AN ANALYSIS OF PUBLIC HEALTH PARADIGMS AND THEIR IMPLICATION FOR HEALTHCARE POLICY

[1]MAMMAN, RAKIYA. , [2]BABA, SAADATU. UMARU. [3]BAKARE-A. T.
[1]Department of Development Studies, National Open University of Nigeria
r.mamman@noun.edu.ng
[2]Department of Geography, Kaduna State University Kaduna Email -
saadatu.baba@kasu.edu.ng
[3]Department of Economics, National Open University of Nigeria
Corresponding author. r.mamman@noun.edu.ng

ABSTRACT.

The aim of this paper is to examine the conceptual divisions which characterise the public health discourse andthe ramifications in operationalizing the concepts of space and place in public health practice. These postulations have stimulated a growing discourse on spatial and non-health sector aspects (determinants) of health and their impact on the different components of public health interventions and health outcomes. Through an analysis of evidence, this paper draws attention to one of the contentious divisions that has characterised the public health discourse and practice for some decades now. This is the contention between the developmental and biomedical paradigms. The biomedical paradigm is characterised by risk and individualization over context, and the development paradigm is characterised by vulnerability and gives priority to participation and context. While both paradigms directly relate to how health and public health are conceptualized in knowledge, they both also have significant influence and in ways that have direct consequences in practice on the following: the policy responses to the health problem, public health interventions and spatial disparities in health. This paper contends that the developmental paradigm and its articulation of a broad spectrum understanding of public health issues - from studying the dynamics of people in places to placing illness and disease within a wider-context provides the most useful framework for operationalizing the spatial aspects of health goegraphies.

Keywords: Public health, policy, biomedical, development, health paradigm

1. INTRODUCTION

Many key geographical concepts are directly relevant to public health, and these include health inequities and inequalities, urbanisation, climate change, environmental degradation, scale and globalisation. Health geographies therefore use a spatial framework to investigate the social, cultural, and political factors that influence health outcomes (Dummer 2008). New paradigms are emerging in the nexus of development and health (Sánchez-Ordóñez 2021). People's social, built, and natural environments, as well as the circumstances in which they are born, develop, live, work, and grow old; their communities, cities, or towns; their access to health care and education; all have a direct impact on their health experiences. The growing discourse on the social determinants of health has stimulated research on the relationship between health outcomes and non-health sector reflected in the emergence of promoting healthy lifestyles as the Goal 3 of the Sustainable Development Goals (SDG 2015–2030). There is evidence of the interdependence of significant health improvements and the interactions between human beings and their environments in place, time, and spatially defined areas (Roxberg, 2020). Since the alma Ata declaration of 1978, the World Health Organization has promoted approach to public health intervention that addresses non-health sector determinants of health and their impact on the different components of public health outcomes. This paper aims to draw attention to the conceptual divisions which characterise the public health discourse andthe ramifications in operationalizing the concepts of space and place in public health - and care-related practice. This contentious division is between the developmental and biomedical paradigms in public health.The biomedical paradigm characterises risk and individualization over context, and the development paradigm characterised by vulnerability and gives priority to participation and context.The concept of 'spatial' (space and place) also referred to as the geographical perspectives is commonly used when researching the environment and broader aspects of health.

The contention between the developmental and biomedical paradigms that dominate the public health discourse is reproduced in the design and implementation of public health care interventions and strategies. While both paradigms directly relate to how health and public health are conceptualized in knowledge, they also have significant influence in ways that have direct consequences in practice on the following: the policy responses to the health problem, public health interventions and disparities in health – even spatial ones. The biomedical paradigm is characterised by risk and individualization over context, and the development paradigm is by vulnerability, and it gives priority to participation and context. However, our understanding of health has important

implications on how we operationalize the concepts of space and place and the non-health dimension in the conception of public health interventions.

This paper argues that there is a conceptual difference between biomedical and developmental models. The assumptions and values on which they are based are fundamentally different. Despite the widespread concern about the relationship between health outcomes and non-health sector, few studies have drawn attention to the intellectual divisions which characterise the public health literature and the potential conflicts in practice. Through a systematic analysis of knowledge and research, this paper draws attention to contentious division that is between the developmental and biomedical paradigms and their influence on the design and implementation of public health intervention. Ideologically, the biomedical paradigm remains the dominant cornerstone of public health thinking and practice.A defining characteristic of the biomedical paradigm is its restrictiveness, but its effectiveness has not been called into question (Longino et al., 2020).

In this paper, it is argued that the developmental paradigm and its articulation of illness and disease within a wider context provides the most useful framework for integrating space (or place) in the design and implementation of public health programmes. From studying the human dynamics and social arrangements, to environmental and the spatial forces impacting population health, the development paradigm is an effective model for improving health inequality.

1.1 Public Health and Conceptual Underpinnings.

It has long been acknowledged in public health discourse that diseases have a social and spatial dimension, but the response to this fact has differed widely among health policy makers (Kippax & Stephenson, 2012). The term 'Public Health' itself requires some clarifications. As Sand explains "In relation to the isolated individual, the art of preventing and curing disease is known as private medicine, in relation to the community as a whole, it is public medicine." Sand (1953:1477). In contemporary thinking and practice (19^{th} - 20^{th}century) the term Public Health is generally used to describe efforts to strengthen measures that prevent and control the increasing vulnerability of large populations to epidemic diseases occasioned by the Industrial Revolution (IR) of the 19th century is notable. The idea that social and environmental factors influence health is not a new one as most contemporary thinkers in Public Health such as Rudolf Virchow (1821-1902), Jerry Morris and Richard Titus (1944) and Rene Sand advanced the need to develop an inquiry into the conditions that maximised health

and prevented disease. In the history of Public Health, the famous story of how John Snow identified the Broad Street pump and contaminated water in London as the source of an 1854 cholera epidemic is notable (Theodore, 2018). The research and influential publications of these pioneers of public health played an instrumental role in widening the scope of traditional public health beyond disease prevention, and towards broader determinants of health. However, the more contemporary knowledge on broader determinant over health comes from the influential research publications and include Berkman & Kawachi, (2000); Black and Morris (1980); Farme (1999); Marmot et al., (1978; 2013; 1990); and Sen (1985; 1993; 1999; 2004; 2004).

The clamour is for interdisciplinary collaborations between medicine and social sciences, such that, the latter, provides medicine with the intellectual skills needed to analyse the social and environmental causes of health and illness. The whole idea of broader role for medicine was to equip physicians to deal with the epidemiological transition created by the economic transformation, social changes, and negative propensities of climate change industrialisation.

Within this paradigmatic shift towards a broader determinant of health in the analysis of disease aetiology, the bulk of the PH literature (both as a discipline and professional practice) presents two main paradigms. One is the biomedical paradigm and the other the developmental paradigm. Between the developmental and biomedical paradigms, there is a significant difference, with each side presenting powerful analytical frameworks and arguments. The diametrically opposing ways of conceptualizing health between the two paradigm bears critically on the role of spatial analysis in the design and implementation of public health interventions as subsequent discussions will show.

Before exploring the conceptual differences, attention to key terminologies in contemporary public health knowledge should be drawn In the jargon of the public health field, the debate between Biomedical and Developmental paradigm by which health care interventions are introduced can be described as one between ‘biomedical’ versus ‘developmental’, 'biomedicine’ versus ‘social medicine’, ‘vertical approaches’ versus ‘horizontal approaches.’ However, the discussions here will not seek to develop distinctions among the various conventional uses of these terms. Instead, the terms ‘biomedical,’ ‘public health’ or ‘vertical approach’ are used to denote the same frame of reference that fits within the biomedical paradigm. On the other hand, the terms ‘developmental’, 'biomedicine’ or ‘social medicine’ are used to denote the same frame of reference that fits within the

developmental paradigm and its philosophical perspective within conventional public health thinking.

1.2 Biomedical Paradigm in Public Health.

The biomedical paradigm is typically located within a positivist perspective and associated with behaviorist model of clinical epidemiology (Longelo, 2020), which sees health and well-being from 'external observation-oriented' perspectives (Sen, 2004). Within this philosophical perspective 'health is defined by scientists and by quantitative outputs rather than by people experiences' (Wolffers, 2000:269). The analytic of the biomedical model is underpinned by epidemiological analysis and external observed medical statistics (Sen, 2004:263). It relies on scientific disciplines like biology, statistics, and engineering. The focus is on aetiology, and the emphasis is on individual and risk. In many ways, a parallel could be drawn between the biomedical paradigm and the philosophy of economics. Like the economic assumption, which sees the market as the organizing principle of the society, the biomedical paradigm sees health as a commodity. As for the supporters of the biomedical approach, they tend to focus on transferring effective, and specific economical technologies designed to reduce disease.Such that advances in biotechnology, drugs, and vaccines are presented as a series of new products and the individual becomes the consumer that is continuously making choices. In in terms of public health intervention the biomedical paradigm promotes the idea that by providing the right information, campaigns, and education, people will change make choices for their own health benefit or change their behaviour.The biomedical paradigm approach in public health intervention effectively de-contextualises health as it isolates the individual from the environmental realities in which their health is produced and places them in a vacuum. The paradigm is typically favoured by medical scientists, statisticians, and clinical public health practitioners. The biomedical model promotes the use of technologies, which benefits the pharmaceuticals and multinationals initially in the era of vaccines, and the later era of single disease aetiology and 'silver bullets' (Banerji, 2006). Other reasons put forward particularly among International Development agencies include the fact that the cost-effectiveness argument appeals to donors. Relating to the above point, but also reflecting another major critique of the dominance of biomedical approach in public health intervention is, the significant growth and stake of pharmaceutical industry evolved into a political force with its lobbying power that significantly blinds socially-spatially oriented approach to population health studies.

1.3 Developmental Paradigm in Public Health.

Development paradigm, on the other hand, sees ill-health and well-being in an internal, or from perception-oriented perspectives (Sen, 2004:261). The emphasis is on the societal structures and the conditions that creates vulnerability as opposed to the individual and their behaviour (Wolffers, 2000). Developmental paradigm builds on the modern knowledge in population health studies that lie in the epidemiological research published for instance by Morris and Titmus (1944) that demonstrated the centrality of social and structural factors in population health improvement. However, more recent knowledge is built from the population health studies in the intersection of equity and human rights and fits with the philosophical views of social and human development perspectives. Such that the health and wellbeing become a state in which an individual realises his or her own abilities and is able to make a contribution to his or her community (Marmot, 2004; Marmot et al., 1994; Farmer, 2004, 2010; Sen, 2004). In the perspective of the developmental paradigm, people's health and well-being are embedded in a structure of social relations and spatial arrangements, such that defining accurately the level of such embeddedness becomes operationally crucial to design and implementation of public health interventions. Supporters of the development paradigm are concerned with the interactions between broader social and structural context and processes of health development. They include scholars that have for long argued that improving population health (i.e., preventing morbidity and mortality), and increasing the impact of public health interventions, requires epidemiological knowledge combined with the understanding of the complex social factors and broad determinants of health outcomes in different spatial settings (such as Marmot et al., 1999; Black & Morris, 1990; Sen, 2004; Berkman & Kawachi, 2000, Farmer, 2010). They made significant contributions to the analysis of population health in terms of the wider political, historical, social, cultural, environmental, and spatial sources of epidemiological variations.

1.4 Policy and Practical Implications for Public Health Practice.

The distinction between the biomedical and social/development paradigms has been historical and problematic (Kippax & Stephenson, 2012). The preceding discussions, distinguished between the two epistemologically opposed models - biomedical and developmental within the discipline of Public Health. In the reality of practice, however, the delineation between the two is not so clearly demarcated or visible, particularly within official International Development agencies. Yet the epistemic differences between the conceptual approaches have far-reaching implications for how Public Health programmes are planned and implemented, particularly in low-income countries. For example, Moshabela et al (2016) in their analysis of the conflict between biomedical approaches and

traditional approaches in South African health space posit that the biomedical paradigm's worldview differs significantly from the traditional healing paradigm; the former employs a scientific knowledge lens, whilst the latter employs an indigenous knowledge lens.

These critical differences stem from, first the meaning given to health and the metric of health improvements that is, how well-being is perceived and assessed. The second implication stems from how the impact of biotechnology is perceived as improving people's life situations. The third is about who controls the inputs and outcomes of health improvements. In terms of planning public health interventions, the debate is one between those who focus on the programmes by which interventions are introduced and those who focus on the process.

In terms of Public Health Planning, the biomedical perspective is inclined to define disease as a deviation from a biological norm and the absence of disease. The planning model is focused on identifying a specific methodology or specific treatments - a 'magic bullet' to root-out ill health by identifying, attacking, and destroying diseased-microorganisms (Brandt, 1987). Within the perspective of biomedical planning model solutions are confined to medical knowledge and technologically driven medical interventions implemented through programmes and project approaches which often viewed the beneficiaries as passive recipients (Magnussen et al., 2004:170). Improvement in population health particularly for developing countries is rationalise in terms of scarcity and choice and cost-effectiveness (Warren & Walsh, 1985; Warren et al., 1985).Credence is given to medical professionals and medical technology, less attention is paid to social arrangement, perception, and the infrastructure (Rifkin & Walt, 1986). Thus, priority, treatment and available financial resources are directed to diseases with the highest prevalence, morbidity, or risk of mortality and with the possibility of prevention and control, in terms of technology, methodology, and cost-effectiveness of the intervention. Biomedical approaches ignore the argument about spatial and social determinants of health, undermines the multidimensional nature of health and centrality of people's participation in design and implementation of public health interventions (Rifkin & Ratna, 2007).

The developmental approach and its inclination towards incorporating impacted people onto programme design and execution, assessing their wellbeing as not merely the absence of disease, situates it in the same divide as those who view development as a process. Conversely, by emphasising the need for process and highlighting the importance of social justice, environment and the social

context, the developmental approach removes health from the sole responsibility of medical professionals in terms of planning procedures and programme implementation.

1.5 Representing Space in Health: The Effect of Public Health Paradigms.

Social and spatial analysis is usually discussed in relation to illnesses for which significant environmental components are believed to exist, such as asthma and lead poisoning and respiratory diseases and what was once termed "social diseases" such as venereal disease and Tuberculosis (TB) (Farmer et al., 2006). Also referred to as socio-medical studies, much of these analyses are confined to field sites, and in the margins of the public health literature. Recent analyses suggest that integrating Social and spatial analysisappropriately creates the understanding and awareness of the social and economic issues that accelerates and facilitates preventable morbidity and inescapable mortality (remedying deprivation and disparities.It helps to ensure the poor are not disadvantaged by disease, and that intervention therapies are implemented where they are needed most (Farmer, 2004:7; 2010:249).

The biomedical tradition typically adopts a blueprint thinking in the design and implementation of public health intervention often generated through top-down vertical programmes. Based on a model of prevention and primarily focuses on changing individual behaviour, rather than addressing the social and structural determinants of health this analytic exclusion approach effectively marginalises social and spatial perspectives. This approach typically underpins much of mainstream public health thinking and practice thus far used bye pidemiologists and health policymakers to investigate health problems and often shapes policy formulation, institutional practice, and targets for health care delivery.

Arguments such as the one from Plummer and Porter (1997) below expose the danger of relying on a purely biomedical approach with its relative simplicity and easily measurable epidemiological statistics in planning and implementing public health interventions. They argue that:

> If people who are predisposed to harm are also less powerful, they cannot be expected to take sole responsibility for their vulnerability. Their vulnerability is the result of a system constructed and regulated by the powerful and the powerful are invincible on the epidemiological map (Plummer and Porter, 1997:42).

On the hand, the developmental paradigm is based on the understanding of how health, disease, social and environmental conditions are interrelated. It

highlights range of influences from genetics, lifestyle, incomes, access, and epidemiology as determinants of health(Marmot, 2004; Marmot et al., 1994). Based on a model that placed the individual within the broader context in which his or her health is produced and the responses they generate, the developmental paradigm projects health as a multi-dimensional concept (Sen, 2004) and making health intervention programmes inescapably multidimensional.The analysis of population health in this context is often seen in terms of the wider political, historical, social, cultural, and environmental determinants of health-related events such as disease as well as the sources of epidemiological variations (Farmer et al., 2006:535)

The supporters of developmental paradigm posit health, as determined by influences ranging from genetics, lifestyle, incomes, access, and epidemiology. Largely driven by mainly sociological and anthropological analysis, the developmental paradigm is viewed as epistemologically limited, albeit in terms of epistemic relevance. According to Sen, this epistemological limitation has a direct bearing on its reach, and therefore it cannot be attached primary importance particularly in terms of the choice of public healthcare intervention (Sen, 2004: 265). However, other analyses suggest asserts the conceptual and methodological strengths the developmental paradigm for researching population health and viewed them as equal partners in the epidemiological settings.

However the biomedical paradigm still remains the dominant cornerstone of public health thinking and practice today.

Notwithstanding there is a continuing and growing critique particularly in international public health interventions on the erosion of deep culture, local context and strrutural arrrangements that can only be uncovered through sociological, anthropological and spatial analysis, (Farmer, 2010:295). If this is the case, then there is a danger that representing space ‘spatial’ (or place) and the knowledge it helps interrogates in public health intervention may be problematic.

2. CONCLUSION/RECOMMENDATION

For the proponents of the development paradigm, a purely biomedical approach that gives priority to medical science, epidemiology, individual, and risk over social factors and social arrangements in which the people grow, live, work, and age (WHO 2008:3) is ‘de-contextualizing’. This paper explored the debates on population health within public health discipline. It presents two paradigms: the biomedical paradigm characterised by risk, individualisation over context, and the development paradigm characterised by vulnerability and context and gives

priority to participation. It clarified the conceptual differences between the biomedical and developmental paradigm and the policy and practical implications of planning and implementing public health intervention. It affirms that the biomedical paradigm is the leading principle in public health interventions and programmes. In principle, there is a need for a better balance between both paradigms in formulating public health intervention for low-income countries. In the light of suggestions that social arrangements, social condition, and forces such as racism, gender and poverty often determine who will fall ill, who will suffer, who will be shielded from harm, who has access to medical interventions and who will access care (Farmer et al., 2006:1686).

It is, therefore, unrealistic, and counter-productive to base public health planning exclusively on the biomedical approach. Conversely, the developmental paradigm and its articulation of a broad spectrum understanding of public health issues -from studying the dynamics of people in places to placing illness and disease within a wider-context- provides the most useful framework for operationalizing the spatial aspect of health. However, there is an important point to note, our critique not a call for a rejection of the biomedical paradigm altogether. Indeed, it is a critique in full recognition of the strengths of the paradigm, and of its achievements. It is also an argument and a plea to afford other disciplinary perspectives, particularly the social sciences and geography in population health analysis and in the design of public health interventions.

This argument may be dismissed as mere academic debates and may seem like the historical tension between 'successful biomedical paradigms' versus 'weaker social development perspectives' (Kendell, 1999:585). It is, therefore, worth restating the prescient comment below from Schoepf as he states;

> *"If the dominant paradigm reflects limited perspective, then the policy conclusion they suggest or legitimate may be ineffective or even counter-productive" (Schoepf, 1991:750).*

This analysis recommends that accelerating multidisciplinary, spatially informed perspectives (rooted in the developmental paradigm) in the current public health collaborations are an effective means to achieving significant improvement in health outcomes.

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