COMMENTARY

On Ethics, Biomedical Education and Health Promotion: International and Chinese Perspectives

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ABSTRACT

Background:
This article is a Commentary that reflects on scientific research and education by exploring a potential social dimension in terms of its implications to population health and public welfare. With particular attention to biomedical technology, it argues that the development of a keen awareness and ethical standards has become a pressing need for social policy to promote scientific social responsibility (SSR) for research and educational institutions. A biopsychosocial view of health and mental health is applied along with an international perspective in relation to China's current ideological and political contexts to indicate the complexity of the issues involved.

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What do we already know about this topic?
The study of population health has drawn huge attention from social scientists and practitioners who are concerned with so-called "social determinants" of population health.
What is the main contribution to Evidence-Based Practice from this article?
This article will explore the subject from a general/global view while also putting it in perspective by considering the current ideological and political contexts of China that have resulted in major social changes in the past decade..
What are the implications towards theory, practice, or policy?
The main issue addressed in this article is the role of scientific undertaking, and biomedical education in particular in promoting individual and societal well-being. The major argument of the article is that scientific research and education contains a social dimension in terms of its implications to population health and public welfare that deserves an ongoing international debate.
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The study of population health has drawn huge attention from social scientists and practitioners who are concerned with so-called "social determinants" of population health. A systems (or systems sciences) approach, however, points to the complex interplay of health-related factors at multiple levels, from biological to societal (Fink, Keyes & Cerdá, 2016). The field of scientific (particularly biomedical) research and education, on the other hand, has seen the rise of SSR (scientific social responsibility) which demands developing linkages between science and society in certain, moral/ethical ways. An old and heated topic for the (philosophical, sociological, etc.) study of science (e.g., Nature, 1935; Butts, 1948), the almighty issue seems to have come back with even more grave concerns since the outbreak of COVID-19, followed by other crises such as deadly nuclear and cyber threats. This article will explore the subject from a general/global view while also putting it in perspective by considering the current ideological and political contexts of China that have resulted in major social changes in the past decade.

FROM CSR TO SSR: A BRIEF REVIEW

Corporate social responsibility (CSR) as a management concept has been used by business organizations (companies) to give back to society while bolstering brand reputation. Its history may be traced back over two centuries, with the birth of "responsible organizations" in the 1800s (Staff Writer, 2019). As a modern practice it emerged in the 20th century, with the term "corporate social responsibility" coined in 1953 by American economist Howard Bowen who is often referred to as the father of CSR (Bowen, 1953). In 1971, the concept of a "social contract" between businesses and society was introduced under the idea of CSR, acknowledging officially that companies function and exist because of public consent and, therefore, there is an obligation to contribute to the needs of society. As more and more companies began incorporating social interests in their business practices while becoming more responsive to stakeholders, the 1990s marked the beginning of widespread approval or universal acceptance of CSR. By the early 2000s, it had become an essential strategy for many organizations (Staff Writer, 2019).

Scientific Social Responsibility (SSR) may be defined as the confluence of scientific knowledge with visionary leadership and social conscience, concerned with building synergies among all stakeholders in scientific knowledge community. The term SSR is analogous to CSR while the former issue was raised and taken seriously in modern literature even earlier as indicated in the beginning of this article. However, the contribution of SSR compared to CSR is minimal at present and not well documented in the literature. Therefore, Samanth and colleagues (2021) conducted a systematic literature review of SSR from year 1947 to 2019 from various fields in order to evaluate SSR. Their findings show that there has been a dramatic increase of scholarly interests in SSR since the 1990s, which is similar to the case of CSR, with attention also from political leaders (e.g., Clinton, 1997). In 2011, Angewandte Chemie International Edition of the German Chemical Society, one of the prime chemistry journals in the world, published an editorial entitled

"Scientific Social Responsibility: A Call to Arms" (Krogsgaard-Larsen, Thostrup & Besenbacher, 2011)[. In their call for a "preemptive strike", the authors urge that scientists develop a new mindset and regain the trust of society by reinvigorating scientific social responsibility and actively voicing their commitment to it. While CSR may provide some inspiration, they argue, the scientific world is faced with the urgent challenge to design and develop academic leadership as a separate discipline with an emphasis on responsible use of research funds (ibid.).

Broadly speaking, responsible scientific action contains consideration of population health and public welfare at every step, including making choice of what to study, for what purpose, and how to carry it out in a way that is sanctioned by social policy for the sake of social or societal well-being. This has become even more apparent since the outbreak of the COVID-19 pandemic, accompanied by other crises such as deadly nuclear and cyber threats. Here, with particular attention to biomedical technology, the development of a keen awareness and ethical standards is seen as a pressing need for social policy to promote scientific social responsibility for research and educational institutions worldwide.

In Asia, India is currently leading the movement toward SSR, as possibly the first country in the world to implement such a national policy on the lines of CSR. In 2019, a draft of the new Scientific Social Responsibility (SSR) Policy was published by the Department of Science and Technology (DST) of Indian Government, building upon its tradition of earlier policies (e.g., Scientific Policy Resolution 1958, Technology Policy Statement 1983, S&T Policy 2003, Sci-Tech and Innovation Policy 2013). The SSR policy was formally released on India's National Technology Day 2022 with a set of guidelines in order to "create an ecosystem with a two-way engagement between science and society" (Dept. of Science & Technology, 2022). This national experiment is of worldwide interest and deserves international attention. With a focus on biomedical education and health promotion, a further look into the giant case of China will also be provided below with some reflection on continuing development of SSR in more specific institutional and cultural contexts.

SSR APPLIED: BIOMEDICAL EDUCATION AND HEALTH PROMOTION

Biomedical research plays a pivotal role in the advancement of science in the 21st century. Life scientists as educators also share their commitment to SSR by contributing to health promotion, particularly in the biomedical field. From an international perspective, such positive contribution may result from related instructional arrangements by institutions of higher learning. And researchers from various countries have attempted to validate their effectiveness with some empirical evidence.

For instance, Muñoz-Rodríguez and colleagues (2021) conducted a survey to explore the influence of an enrolled degree course on health and eating habits in a population of Spanish university students.[10] Their cross-sectional observational study, by means of a food frequency questionnaire, was carried out with 648 students, and the findings show that the self-reported BMI (body mass index) was higher for the non-biomedical students group, which also reported less regularity in taking meals, eating fewer colored vegetables and fruits, and a higher alcohol intake. In contrast, the proportion of students that showed more interest in the diet-health duality and a desire to adopt healthier habits was larger in the biomedical students group than in the non-biomedical group. The dietary habits discovered in the study suggest that biomedical students make healthier food choices; additionally, the group of biomedical students took more walks per week (ibid.). Research like this shows that biomedical education, in addition to its scientific purposes, does affect the health behavior of the students with a positive impact on health promotion.

HEALTH ETHICS VS. IDEOLOGICAL/POLITICAL EDUCATION: A CASE WITH CHNESE CHARACTERISTICS

Aside from the potential benefits demonstrated by the kind of research mentioned above, the term "scientific social responsibility" or SSR carries strong moral implications for scientists and science educators. In the biomedical field as well as allied health professions, it is the subject of scientific and health ethics that both researchers and practitioners are exposed and obliged to (Vevaina, Nora & Bone, 1993). There are certain ethical rules and principles, including non-maleficence,

beneficence, respect for individual autonomy, confidentiality, and justice, that appear consistently. Some of the ethical issues may arise in clinical practice anywhere, including informed consent, non-initiation and termination of medical therapy, genetic intervention, and allocation of scarce health resources. However, what can be considered moral and ethical should be further examined within particular, diverse national contexts.

In current China, for example, beyond the usual discussion of scientific and health ethics there is an additional layer that must be considered. That consideration or educational requirement is called Si Zheng in Chinese (in abbreviated form), which means ideological and political education. Aside from courses specifically designed for that purpose, it requires or encourages teaching all other courses from official ideological and political perspectives, or explaining course contents (including science and technology curricula) as much as possible on the ideological and political dimension. Therefore it's also called "ideological education in the curriculum", or "curriculum ideology and politics" (Liang, 2022). The undertaking, which has seen a dramatic rise over the past few years, possesses strong connections to the established Chinese practice of De Yu (moral education) within its educational systems ever since the People's Republic was founded. Its evolution to such a dominating status with the current "state of art" of Si Zheng is worth studying as a renewed case "with Chinese characteristics". While it may sound like something beyond the subject of this article, it is of great relevance to the discussion of SSR in the particular cultural and historical contexts in which we can sense the complexity of the issues involved.

BIOPSYCHOSOCIAL PERSPECTIVES

Bioethics is the discipline of ethics dealing with moral problems arising in the practice of health care and the pursuit of biomedical research (Heyes, 2007). Helping professionals may confront ethical dilemmas regularly in their individual relationships with patients and in institutional/societal decisions on health care policy. Moral problem solving requires the application of certain ethical rules and principles to specific situations while ethical theories also differ in different contexts. Interpretation of the ethical principles and the application of these principles to each clinical situation demands the thoughtful attention of the practitioner. In biomedical education as well as training in all health-related professions, a biopsychosocial perspective may prove to be very helpful for addressing various ethical issues in research and practice.

Available research literature provides plenty of insights that contribute to biological, psychological, and social perspectives regarding biomedical issues on a global scale. Taking alcohol abuse issue for instance, previous clinical studies demonstrated that Asian subjects were more sensitive to alcohol than non-Asian subjects, besides the influences of psychological and social factors. Therefore, lower rates of alcohol abuse found in certain Asian cultures might have a physiological base, thus enriching our understanding with a more comprehensive biopsychosocial view applicable to the study of reaction patterns to biomedical procedures. However, more international comparative studies are needed since different nations may have different patterns of alcohol consumption, which may be more complicated than some simple rates can differentiate and evaluate. Generally speaking, it is the concern of such issues that have given rise to a relatively new field of research in psychosomatic medicine (Lyketsos et al., 2006).

With regard to the psychosocial aspects of health and mental health issues (Macleod & Davey, 2003), theories of stress and coping along with the role of socioeconomic status (SES) have helped to expand our knowledge in terms of the development of psychiatric and social medicine (Holzer et al., 1986). On the other hand, unlike the stress theory emphasizing that social conditions may cause illness, some other approaches such as selection and drift theories argue that health problems cause low social status through a selecting or drifting process. In particular, mental patients in the lower socioeconomic classes were less likely to go to private clinics but more likely to receive severe diagnoses when first seen by healthcare professionals, and more likely to be involuntarily hospitalized. Lower class status might also cause mental health problems through environmental and individual factors; conversely, mental disorders could cause lower socioeconomic status. At an even higher level of theoretical reasoning, the former is associated with the conflict theory while the latter more associated with the functional theory in sociology. All these ideas and insights would help us achieve a more comprehensive understanding via the biopsychosocial lens when

studying a variety of health service and bioethics issues (Chen & Chen, 2021).

It is important to note that cultural issues always operate under certain social conditions. Cultural values and the social structure always mutually influence, constantly adopt and adjust, and may also conflict with each other. Underutilization of healthcare services, for instance, does not necessarily mean lack of needs or problems, but rather an indication that healthcare services may not respond very well to the needs of certain populations (e.g., Asian Americans) (Sue & McKinney, 1975; Chen et al., 2003).[

Furthermore, healthcare advocacy is an important tool in the helping professional's arsenal that stands the potential to improve both patient care and the profession (Mullens et al., 2019). However, many professionals feel that they lack the leverage and knowledge to advocate on behalf of themselves, their practices, their patients, and their profession. Yet, as a matter of fact, healthcare professionals are uniquely positioned to advocate based on their clinical acumen, personal experience with patient care, and their position in the healthcare ecosystem value chain. The development of a keen awareness with clear ethical standards, thus, becomes an inherent requirement in our consideration of a potential social dimension in biomedical education.

CONCLUSION AND DISCUSSION

The main issue addressed in this article is the role of scientific undertaking, and biomedical education in particular, in promoting individual and societal well-being. The major argument is that scientific research and education contains a social dimension in terms of its implications to population health and public welfare. With particular attention to biomedical technology, the development of a keen awareness and ethical standards has become a pressing need for social policy to promote scientific social responsibility (SSR) for scientific research and educational institutions. A biopsychosocial view of health-related matters as well as an international perspective on ethical issues in healthcare practice are more important than ever to achieve a higher level understanding. Cultural sensitivity is equally instrumental to the inquiry (Mcnulty & Fincham, 2012), particularly in relation to China's current ideological and political contexts in terms of the complexity of the issues involved. By combining an interest in the social determinants of health with a conceptual framework of SSR for understanding how genetics, biology, behavior, psychology, society, and environment interact (Braveman & Gottlieb, 2014), a systems or systems science approach can inform our understanding of the underlying causes of the distribution of health across generations and populations and can help us identify potential barriers to its achievement. Therefore, it is ultimately important to understand how systems science approaches may make substantive and methodological contributions to the study of population health from a combined science-social science/social affairs perspective. That is why allied health professions such as social work may make a substantial contribution as well.

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