

MINI REVIEW

Research translation: A pathway for health inequity

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Abstract

In a context of social inequity, research translation naturally furthers health inequity. As Fundamental Cause Theory (FCT) explains—and an associated empirical literature illustrates—those with more resources benefit earlier and more from scientific innovation than those with fewer resources. Therefore, research translation of its own course creates and widens health disparities based on socioeconomic status and race/ethnicity. Yet, the conversation about research translation has yet to center this critical reality, undermining our efforts to address health inequity. Moving toward sustainable health equity requires that we build the evidence base for, prioritize, and institutionalize translation approaches that center the needs and assets of low-resource populations (with community engagement helping toward that end). However, even the impact of that approach will be limited if we as a society do not mobilize knowledge to address social inequity and the many ways in which it shapes health. The health research community should engage the FCT paradigm to think critically about resource allocation among different kinds of research and action. Moreover, in our contributions to discussions about the road to health equity, we must be forthcoming about the reality FCT describes and the limitations it indicates for achieving health equity through translation of biomedical, clinical, health services, and health behavior research alone.

Over the last 20 years, there has been an increased emphasis on the “translation” of research into actions to improve population health. More recently, scholars have broadened the goal of translation to include reducing health inequity while improving health overall. However, we have not focused on an essential point: the fact that research translation is itself a pathway for the creation and widening of health inequities.

In 2005, Elias Zerhouni, then director of the National Institutes of Health, announced the Clinical and Translational Science Awards Program to create infrastructure to promote the spectrum of translation—from basic science into preclinical research (T1), preclinical research

into clinical, behavioral and health services research (T2), and translation of the latter into clinical practice (T3) and public health improvement (T4).¹ Recognition of the importance of research translation is also reflected in the growing interest in creating “learning healthcare systems” that can quickly adopt effective innovations² and in developing and applying implementation science to the spread of innovation in health care.³

More recently, disparities in the prevalence and outcomes of coronavirus disease 2019 (COVID-19), together with the increased visibility of murders of Black Americans by police, have brought greater attention to the problem of health disparities.⁴ Accordingly, the literature on research

translation has broadened to encompass translation as a means of promoting health equity. This incipient literature has brought attention to a number of issues, such as the value of community engagement, non-traditional approaches to translation, and tailoring of interventions⁵; the need to diversify study teams and study participants, and conduct more research on health equity⁵; the reality of global inequities in research translation⁶; and the utility of health equity impact research assessments.⁷ However, the discourse has not centered what is arguably the most important point about the relationship between translation and health equity—the fact that the natural course of translation is to create and widen inequity.

FUNDAMENTAL CAUSE THEORY

Why does research translation contribute to health inequity? The answer lies in the Fundamental Cause Theory of health disparities. Fundamental Cause Theory or FCT was developed by sociologists 25 years ago to explain the persistent association between socioeconomic status (SES) and health across different diseases, historical time periods, and country contexts. What explains this striking pattern, according to FCT, is the fact that people of higher SES, both individually and collectively, have the resources to avail themselves of the protective factors associated with better health—*whatever* the health condition in question. The theory has been summarized in this way:

“People of higher SES use flexible resources—knowledge, money, power, prestige, and beneficial social connections—to garner health advantages irrespective of which diseases are prevalent or which modifiable risk and protective factors have been identified at a particular place and time (p.132).”⁸

Moreover, because of systemic dynamics such as “spillover” (the ways in which our social networks affect our health), the health of highly resourced individuals can benefit from their circumstances even if they do not themselves directly and proactively take advantage of specific opportunities to leverage their resources.⁸ Other systems of social stratification operate similarly to SES. In the United States, because

race and ethnicity (as a result of racism) affect access to “flexible resources,” they are associated with health—both through their association with SES *and* independently of that association. Figure 1 offers a visual representation of FCT, indicating that the “fundamental cause” (social stratification and its relationship to resources) continually shapes the distribution of changing proximal mechanisms associated with specific health conditions.

The proponents of FCT note that stratified access to resources is not the only force affecting the distribution of health in a society. For example, some health behavior, such as smoking among young people, may be conditioned by cultural realities not associated with social stratification. Nonetheless, FCT explains *dominant* patterns of health distribution across a wide range of contexts and the past 25 years have seen the emergence of an impressive body of literature that has tested and confirmed hypotheses rooted in this theory.⁸

One of the approaches to empirically testing FCT has been to study the relationship between health care innovation and health disparities. If FCT is correct, then new innovations in health care and health promotion should first improve the health of those with the greatest access to the “critical resources” of health, thereby creating or widening health disparities. Research supports this hypothesis. For example, Phelan has found a stronger association between SES and mortality for causes of death that are preventable than for those that are not preventable.⁹ Phelan and Link also demonstrate that as our capacity to prevent disease-specific mortality improves over time, SES/race-based disparities for these deaths increase.⁹ Conversely, for diseases on which we have not made progress, disparities have not changed.

In a more granular example, Chang and Lauderdale studied income gradients for cholesterol in nationally representative data from 1976 to 2004.¹⁰ They found that at the beginning of this time period higher income was associated with higher cholesterol levels, presumably reflecting dietary patterns. However, once statins were determined to be impactful in lowering cholesterol and “translated” into clinical practice, the relationship between SES and cholesterol levels reversed, with higher income associated with lower cholesterol levels. In a study of receipt of the adolescent human papillomavirus (HPV) vaccine, Polonijo and Carpiano traced how FCT worked



FIGURE 1 Fundamental Cause Theory Adapted from Diez Roux.²³

at each step toward uptake, demonstrating the association of race/ethnicity and SES with parental awareness of the vaccine, likelihood of receiving a recommendation for the vaccine from a healthcare professional, and initiation and completion of the vaccine series.¹¹

As diffusion of innovation increases over time, disparities associated with research translation lessen. However, translation of the next advance in health research will widen inequities again.¹² Moreover, as Chang and Lauderdale note, in some situations, the disparities associated with earlier access to innovation are compounded by the cumulative benefits of longer treatment.¹⁰

WHAT SHOULD WE DO?

What should be done about the relationship between research translation and health inequity? Quashing new discovery—which, in any event, is not feasible—is certainly not desirable. Indeed, as David Mechanic notes, even innovations that widen disparities can improve the health of those with the fewest resources.¹³ In other words, disparities can widen even as health improves among all social groups.

Nonetheless, it is incumbent upon those who have dedicated themselves to health improvement to mitigate the inequities associated with research translation. Health inequities represent a missed opportunity for health improvement. If better health outcomes are possible, then we can realize those health outcomes for all. Moreover, although we may not all agree on what societies should do about the social inequities that underlie health disparities, we can agree that the roots of many of those inequities—such as racism, sexism, and exploitive labor practices—are unfair and must be addressed. Finally, research indicates that economic inequality tends to be self-reinforcing, with current inequality shaping a politics of future inequality—either because government is more responsive to the interests of the wealthy or because (in many scenarios) growing income inequality increases the number of those who would “lose” from income redistribution and therefore oppose it.^{3,14} The same logic may hold for health inequity—with widening gaps in the health-related political and policy interests of differently-resourced people reinforcing and even widening inequity.

The ethical imperative to confront the relationship between research translation and health inequity is brought home by the translational impact of inequitable health care access—one of the multiple resources that links social and health inequity. The late Senator Ted Kennedy explained that his passion for universal health care began with his son's participation in a clinical trial to treat bone cancer. Speaking of the parents of children in the trial, he wrote:

We all hoped that our child's life would be saved by this experimental treatment. Because we were part of a clinical trial, none of us paid for it. Then the trial was declared a success and terminated before some patients had completed their treatments. That meant families had to have insurance to cover the rest or pay for them out of pocket. Our family had the necessary resources as well as excellent insurance coverage. But other heartbroken parents pleaded with the doctors.¹⁵

As Kennedy's searing reflection makes clear, it is a contradiction to talk about addressing health inequity through research translation when even some research participants cannot access the treatments they help create. We must address the link between research translation and health inequity. But how can we do so?

WHAT CAN WE DO?

The variables that link social inequity to health inequity—differences in knowledge, money, power, social standing, and social connections—may not always be transparent or fully understood, but they are not mysterious and they are not ineffable. They can be identified and researchers can address some of them through proactive translation strategies.

Research has shown that population-specific messaging, culturally tailored outreach, asset-based translation strategies, and dissemination through select community locations—such as faith-based organizations and barbershops—can support health behavior changes in low income and racial/ethnic minority communities.^{16–18} However, if this approach is to have a significant impact on health equity, it cannot be used by individual research teams working on individual projects. Given the intrinsic relationship between research translation and health inequity, every innovation translated *without* special attention to equity sets us back. Evidence-based approaches to equitable translation need to become standard practice. In order for that to happen, research funders and research institutions must require researchers to utilize translation strategies that center the needs and assets of marginalized populations, and must design funding opportunities that provide the time, staffing, and material resources required to carry out these strategies. Furthermore, the research community will need to develop, sustain, and systematically deploy an infrastructure that supports widespread and consistent use of these new translation strategies (e.g., institutionalized channels of communication, and relationships with decision-makers). Additionally, we must make equitable translation strategies a critical subject of

research and translation themselves. If translational science—or the study of research translation—is to promote health equity, it must be rooted in a recognition of the naturally inequitable course of translation.

Partnership among researchers and the communities affected by the issues they are studying—or community engaged research—is one way to facilitate research translation in general and translation for low-resource communities in particular.¹⁹ Engagement improves community trust and buy-in to research and helps research teams to identify and prioritize research topics, methods, and translation strategies that are appropriate for specific communities. In fact, some practitioners of community-engaged research argue that the language of “research translation” is inappropriate, as it suggests that improved health will result from researchers unidirectionally transferring what they know to health professionals and affected communities.¹⁹ In actuality, they argue, communities and practitioners have a great deal of knowledge to share about turning research into action and the greatest impact is achieved when they work with researchers to co-create and “mobilize” knowledge. Whatever language is used, the critical point is that community engagement—if widely institutionalized and institutionally supported—can help build our capacity for more equitable action.

Changing our approach to research translation can address inequities in knowledge of new innovations and counter some of the systemic effects of social inequity (e.g., by enhancing the health supporting capacity of networks, clinical sites, and social institutions serving under-resourced populations). However, changing translation strategies will *not* affect the inequitable access to medications described by Ted Kennedy or myriad other ways in which the unequal distribution of power, prestige, money, and other resources affect the distribution of health risks and protections.

Rather, health inequity will be most impacted by the application of research—and other forms of knowledge—to: (1) reducing the ways in which social inequity affects access to resources and (2) reducing social inequity itself. As noted by former Centers for Disease Control and Prevention (CDC) director Tom Frieden, changes in social conditions have a bigger impact on population health than do changes in clinical care and health education.²⁰ Social stratification is among the most important of those social conditions. There is even a body of literature indicating that the relationship between social expenditures and health outcomes is stronger than that between health expenditures and health outcomes.²¹

What does this mean for health research funders and institutions? Some might argue that the implications are minimal. Policy researchers and social scientists already conduct research on social drivers of health. Moreover,

what should be done with our knowledge of social drivers of health is not straightforward, raising many legitimate (and arguably some unsubstantiated) debates over facts and values. Additionally, academic medical centers are already beginning to recognize the importance of social drivers of health, with some in the early stages of implementing and studying integration of social services and clinical care.

However, I would argue that the implications are significant. As Paula Lantz has noted, and as FCT would indicate, it is unrealistic to think that we can improve the health of patients with complex, chronic, long-standing needs facing structural obstacles merely through referrals to individual social services,²² indicating that this approach to addressing social drivers of health in medical centers will have limited impact. Given all that FCT indicates about the natural contribution of research translation to health inequity and the limits of what can be done through modifying translation strategies, the health research community should think critically about the allocation of our resources and societal resources to different kinds of research and different kinds of action. In addition, in our contributions to deliberations about the road to health equity we must be forthcoming about what that road entails and the limits of what translation of biomedical, clinical, health services, and behavioral research alone can do.

Determining how to do this requires debate around facts and values (the nature of a good society, the role of researchers, etc.) that will not be answered here. However, these discussions need to happen and they need to center the realities explained by FCT.

CONCLUSION

Without understanding and significant redress of the ways in which research translation creates and widens health inequities, efforts to address those inequities will falter; indeed, as FCT explains—and the associated empirical literature illustrates, scientific innovation will widen disparities again and again. At a minimum, the health research community needs to recognize and be forthcoming about the ways in which translation contributes to inequity. If we wish to counter that dynamic, we must build the evidence base for, prioritize, and institutionalize translation approaches that center the needs and assets of low-resource populations. We must also recognize the limitations of any approach to translation—even the most intentional—if we as a society do not address social inequity. The health research community should engage the FCT paradigm to think critically about resource allocation among different kinds of research and action. Moreover, in our contributions to deliberations about the road to health equity, we must be forthcoming about the reality FCT describes and the limitations it indicates for achieving health equity

through translation of biomedical, clinical, health services, and health behavior research alone.

CONFLICT OF INTEREST

The author declares no competing interests for this work.

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