



Social inequalities in adolescent human papillomavirus (HPV) vaccination: A test of fundamental cause theory

Andrea N. Polonijo*, Richard M. Carpiano

University of British Columbia, Canada

ARTICLE INFO

Article history:

Available online 27 December 2012

Keywords:

United States
Health inequalities
Fundamental cause theory
Human papillomavirus (HPV)
Vaccine

ABSTRACT

A unique contribution of the fundamental cause theory of health disparities is its ability to account for the persistence of disparities in health and mortality, despite changes in the mechanisms that are relevant at any given time. Few studies, however, have investigated how such mechanisms are created or operate. Examining the introduction of the human papillomavirus (HPV) vaccine for adolescents—a treatment aimed at preventing cervical and other cancers that typically emerge in mid- to late-adulthood—we empirically trace such a disparity-generating mechanism that is in the process of being latently created, testing whether socioeconomic status (SES) and racial/ethnic disparities exist for several facets of vaccination receipt: knowledge about the vaccine, receipt of a health professional recommendation to vaccinate, and initiation and completion of the three-shot vaccination series. Analyses of 2008, 2009, and 2010 United States National Immunization Survey-Teen data ($n = 41,358$) reveal disparities consistent with fundamental cause theory, particularly for vaccine knowledge and receipt of a health professional recommendation. While parental knowledge is a prerequisite to adolescent vaccine uptake, low SES and racial/ethnic minority parents have significantly lower odds of knowing about the vaccine. Receipt of a health professional's recommendation to vaccinate is strongly associated with vaccine uptake, however the odds of receiving a recommendation are negatively associated with low SES and black racial/ethnic status. Our findings inform fundamental cause theory by illustrating how disparities in distinct stages of the uptake of new treatments may contribute to reproducing existing health disparities—and, in this case of adolescent HPV vaccination, may maintain future disparities in cervical cancer among adult populations.

© 2012 Elsevier Ltd. All rights reserved.

Introduction

Health inequalities by socioeconomic status (SES) and race/ethnicity have been well documented in scholarship concerning the social determinants of health and constitute ongoing, vexing public health problems (Carpiano, Link, & Phelan, 2008; Phelan, Link, & Tehranifar, 2010). Significant attention has been paid to better understanding the mechanisms that account for these associations – how social circumstances “get under the skin” to affect health outcomes (e.g., Adler & Stewart, 2010; Taylor, Repetti, & Seeman, 1997). In their seminal article on “Social Conditions as Fundamental Causes of Disease,” Link and Phelan (1995) theorize that due to the unequal distribution of health-beneficial resources in a society, health inequalities emerge and persist because persons who are more advantaged in terms of knowledge, money, status,

and beneficial social connections are better positioned to avail themselves of health-promoting resources and innovations and, consequently, experience greater health and longevity than less advantaged persons. Since the publication of that article nearly twenty years ago, a growing body of research has empirically tested the fundamental cause theory and found support for its proposed mechanisms across a variety of health outcomes in their relation to SES and racial/ethnic status (see reviews by Carpiano et al. (2008) and Phelan et al. (2010)). Few studies, however, have (a) considered specific stages in the adoption of a treatment, or (b) specifically examined this theory with respect to the introduction of health-promoting innovations administered early in the life course that may act as latent mechanisms whereby an effect on morbidity and mortality is not immediately evident, but rather, would be revealed at a later stage of life.¹

* Corresponding author. Department of Sociology, University of British Columbia, 6303 Northwest Marine Drive, Vancouver, British Columbia, Canada V6T 1Z1.

E-mail address: polonijo@alumni.ubc.ca (A.N. Polonijo).

¹ We credit and thank Bruce Link for this idea of latent disparities (personal communication, August 25, 2011).

In the present study, we trace an example of a latent mechanism that is in the process of being created: knowledge and uptake of the human papillomavirus (HPV) vaccine, a relatively recent innovation that is primarily targeted at adolescent girls and may help prevent cervical (as well as other, less prevalent forms of) cancer—a disease that typically emerges later in adulthood and for which SES and racial/ethnic disparities have been well-documented. Using data from the 2008, 2009, and 2010 US National Immunization Survey – Teen (NIS-Teen) (U.S. Department of Health and Human Services (DHHS), 2009; DHHS, 2010; DHHS, 2011), we apply fundamental cause theory to test hypotheses regarding socioeconomic status (SES) and racial/ethnic disparities in three distinct stages of the adoption of this new treatment: (1) parent/guardian knowledge about the HPV vaccine, (2) health professional recommendation to receive the HPV vaccine, and (3) uptake of the HPV vaccine (both initiation and completion of the three shot series) by adolescent girls. Accordingly, we demonstrate a useful concept for medical sociology and social epidemiology, examine distinct stages in which disparities may arise, and raise the salience of latent mechanisms for understanding social inequalities in health.

Background & theoretical motivation

Fundamental cause theory

Fundamental cause theory posits that health disparities have endured despite significant changes in diseases and the risk factors associated with them because social conditions embody “an array of resources, such as money, knowledge, prestige, power, and beneficial social connections that protect health no matter what mechanisms are relevant at any given time” (Phelan et al., 2010, p. S28). Such resources affect people’s ability to avoid health risks and minimize the impact of disease once it occurs (Link & Phelan, 1996, p. 472). While individuals may not always purposely utilize their resources to improve their health, they may still benefit from “spillovers” – the actions of others in their social networks – that accrue unequally to people of different social positions (Freese & Lutfey, 2011). Although fundamental cause theory was initially developed to explain SES-based disparities in health and mortality, race and ethnicity are strongly associated with resource access, and thus have been hypothesized as having comparable effects on health (Phelan et al., 2010).

As major disease processes are transformed from factors beyond human capacity, to factors that can be understood and controlled via biomedical knowledge and interventions, fundamental cause theory predicts that the benefits of this newfound capacity will be unequally distributed in a population, contributing to the social shaping of health disparities (Link, 2008). Hence, fundamental causes become apparent under conditions of change, such as changes in diseases, treatments, and risk knowledge (Link & Phelan, 1996). Because those resources that fundamental causes embody can be transported from one situation to another, as “health-related situations change, those with the most resources are best able to avoid diseases and their consequences” (Link & Phelan, 1996, p. 492). Therefore, a key facet of the theory is the consideration of human creations, such as medical innovations, as well as new health-relevant knowledge, for linking social conditions and disease. These mechanisms compel consideration of the dynamic nature of health disparities in terms of how disparities are shaped in both positive and negative ways by human interventions.

Despite the fundamental cause theory’s conceptual popularity in medical sociology and population health, it has undergone relatively few empirical tests (e.g., Miech, Pampel, Kim, & Rogers, 2011). Nevertheless, existing empirical tests have found, consistent with the theory, that individuals of lower SES and racial/ethnic

minority status have higher likelihoods of dying from diseases that were relatively preventable (e.g., heart disease), while such disparities are less pronounced for mortality from less preventable diseases (e.g., brain cancer) (Phelan, Link, Diez-Roux, Kawachi, & Levin, 2004; Tehranifar et al., 2009). Most germane to the present examination, however, are four US studies that have used time trend data to test the fundamental cause theory with respect to the introduction of health-improving innovations. Link, Northridge, Phelan, and Ganz (1998) identified the emergence of SES-based disparities in mammography screening once this diagnostic tool was widely implemented and endorsed. Chang and Lauderdale (2009) found that the initially positive association between income and cholesterol levels reversed and became negative once cholesterol-lowering statin drugs became available. Rubin, Colen, and Link (2010) reported that the introduction of highly active anti-retroviral therapy (HAART), though lowering HIV/AIDS mortality rates overall, exacerbated inequalities in HIV/AIDS mortality by SES and race/ethnicity. Lastly, Wang, Clouston, Rubin, Colen, and Link (2012) found that the protective impact of higher SES on colorectal cancer mortality has increased over time, while the faster diffusion of information and innovation reduces social inequalities in mortality.

These four studies of health innovations make important contributions to fundamental cause theory by providing evidence of medical innovations that have created and reproduced health disparities. While these studies clearly show that SES and race/ethnicity are associated with the adoption of such innovations (e.g., Link et al., 1998) and changes in disparities after the innovation is introduced (Chang & Lauderdale, 2009; Rubin et al., 2010; Wang et al., 2012), what remains unclear, however, is *how* SES and race/ethnicity disparities emerge via such mechanisms. If SES and race/ethnicity entail differential access to knowledge, money, prestige, and beneficial social connections, then how do these resources operate? Based on the premises of fundamental cause theory, lower SES and racial/ethnic minority status persons (compared to their more advantaged counterparts) should have fewer resources for learning about, taking advantage of, and realizing the benefits of a health innovation. To examine these premises, we use the empirical case of the HPV vaccine and consider how disparities may arise at various stages of adoption, from initial knowledge to uptake.

HPV, cervical cancer, and HPV vaccination in the United States

HPV is the most prevalent sexually transmitted infection in the US and has been established as a necessary precursor for the development of cervical cancer (Watson et al., 2008; Zimmerman, 2006). Cervical cancer was once the leading cause of cancer death among US women, but widespread uptake of Pap smear screening to identify cancerous and precancerous cervical lesions has decreased cervical cancer deaths by about 70% (Casper & Clarke, 1998; Downs, Scarinci, Einstein, Collins, & Flowers, 2010; Reiter, Brewer, Gottlieb, McRee, & Smith, 2009). Despite the dramatic decline in overall cervical cancer deaths, over 12,000 women in the US are diagnosed annually and 4000 die from the disease (National Cancer Institute, 2011), a disproportionate number of which are women of low SES and racial/ethnic minority status (Garner, 2003; Watson et al., 2008). While 8.4 out of every 100,000 White women in the US are diagnosed with cervical cancer, African-American and Hispanic women have incidence rates of 12.6 and 14.2, respectively (Watson et al., 2008). These racial/ethnic minority groups also have a tendency to be diagnosed with cervical cancer at later, less-treatable stages of the disease, and thus have higher mortality rates (Garner, 2003; Newmann & Garner, 2005). An inverse relationship between SES and cervical cancer persists across racial/ethnic

Download English Version:

<https://daneshyari.com/en/article/952352>

Download Persian Version:

<https://daneshyari.com/article/952352>

[Daneshyari.com](https://daneshyari.com)