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Health lifestyle behaviors among U.S. adults

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ABSTRACT

Existing research that studies individual health behaviors and conceive of behaviors as simplistically reflecting narrow intentions toward health may obscure the social organization of health behaviors. Instead, we examine how eight health behaviors group together to form distinct health behavior niches. Using nationally-representative data from U.S. adults aged 18 and over from the 2004–2009 National Health Interview Survey (NHIS), we use Latent Class Analysis to identify classes of behavior based on smoking status, alcohol use, physical activity, physician visits, and flu vaccination. We identify 7 distinct health behavior classes including concordant health promoting (44%), concordant health compromising (26%), and discordant classes (30%). We find significant race/ethnic, sex, regional, and age differences in class membership. We show that health behavior classes are associated with prospective mortality, suggesting that they are valid representations of health lifestyles. We discuss the implications of our results for sociological theories of health behaviors, as well as for multiple behavior interventions seeking to improve population health.

1. Introduction

Unhealthy behaviors are implicated in up to 40% of premature deaths in the U.S. (Mokdad, Marks, Stroup, & Gerberding, 2004) and contribute to persistent disparities in health (U.S. Department of Health and Human Services, 2015). But public health and behavioral research routinely focuses on single behaviors or small subsets of behaviors with shared functional meanings (e.g., both drinking and smoking to alleviate stress). Health lifestyle theories suggest that focusing on single behaviors or small subsets of either risky or low-risk behaviors offer limited insight into the organization of meaningful health behavior patterns that reflect broader social forces (Frohlich, Corin, & Potvin, 2001). From an applied standpoint, interventions that target single behaviors may do little to create enduring changes in broader health behavior patterns or in related health outcomes (Spring, Moller, & Coons, 2011). Indeed, the Institute of Medicine (2001) suggests the need for models and interventions that consider multiple behaviors simultaneously, as a strategy for creating larger and more enduring behavioral changes.

We advance existing research by drawing on health lifestyle theories that link broad patterns of health behaviors to social conditions, and using nationally representative data on diverse health behaviors among U.S. adults to identify typologies of health-related behavior that encompass both healthy and unhealthy behaviors. A detailed description of major health behavior typologies among U.S. adults is a necessary first step in addressing disease prevention and health promotion. In addition, we examine how health behavior typologies are associated with sociodemographic characteristics (i.e., age, race/ethnicity, sex, and region) and test a link with prospective mortality as a measure of the predictive criterion validity of including both healthy and unhealthy behaviors in typologies.

1.1. Health lifestyles

Health lifestyles are broad and potentially unobservable orientations that organize patterns of behaviors that derive from knowledge and norms about what constitutes healthy, stress relieving, or pleasurable behaviors (Bourdieu, 1984; Cockerham, 2005). Health lifestyle perspectives emphasize that individual choices about health behaviors are influenced by the social, cultural, and economic forces that frame and constrain individual choices (Bourdieu, 1984; Cockerham, 2000a). For example, cultural diffusion and cultural preferences (Pampel, 2005; Saint Onge, & Krueger, 2011), racial and economic stratification (Harris, 2010; Krueger, Saint Onge, & Chang, 2011), and geopolitical forces (Cockerham, Hinote, Cockerham, & Abbott, 2006; Krueger, Bhaloo, & Rosenau, 2009) have been linked to the organization of health behavior patterns. In contrast, frequently used behavioral theories such as the Health Belief Model or the Theory of Planned Behavior focus narrowly on individuals and offer little insight into how behaviors are shaped by broader social contexts (see Abel and Frohlich

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(2012) for further discussion). According to Bourdieu (1984:77), lifestyles are "most marked in the ordinary choices of everyday existence." By emphasizing patterns of behaviors rather than single behaviors, we gain insight into the various ways that ordinary behaviors coalesce into meaningful patterns, and how those patterns reflect behavioral niches that are structured by social positions including age, race/ethnicity, sex, and geographic region.

Our first aim is to examine how individuals practice distinctive "health lifestyles" as indicated by meaningful typologies in a diverse array of health behaviors. We advance prior research in three ways. First, we consider health behaviors from *multiple domains*, including what are traditionally considered "lifestyle" variables (e.g., smoking, drinking, exercise), as well as preventive health care behaviors (e.g., influenza vaccinations, receipt of dental care, eye exams). Prior research on health behavior patterns generally focuses on behaviors in narrow domains (e.g., the combination of drinking and smoking), and sometimes conflates behaviors with the antecedents or outcomes of those behaviors (e.g., including mental distress along with measures of drinking and smoking). By including behaviors from multiple domains, we present a more comprehensive picture of health behaviors among U.S. adults.

Second, we consider behaviors that reflect *diverse intentions toward health*. Much public health and even sociological research implies that, *ceteris paribus,* people treat the pursuit of health and the enactment of healthy behaviors as though they should be the most important objective for all individuals (Frohlich, Corin, & Potvin, 2001). In contrast, health lifestyle theories recognize that individuals cultivate diverse motivations—including seeking pleasure, managing time for work and family obligations, alleviating stress, and expressing age, gender, socioeconomic, regional, and race/ethnic identities —that can compete with motives to pursue health (Jackson, Knight, & Refferty, 2010; Pampel, 2012; Saint Onge, & Krueger, 2011). Although some behaviors are likely undertaken with health "in mind" (e.g., influenza vaccinations, doctor visits), other behaviors are routinely undertaken or avoided for non-health related reasons (e.g., exercise, alcohol consumption, sleep duration).

Because we consider health behaviors from multiple domains that have diverse implications for health, and that reflect diverse intentions toward health, we expect to identify some health behavior typologies that are "discordant" and that include some combination of both healthy and unhealthy behaviors. In contrast, public health research often imposes a "concordant" structure on health behaviors (i.e., where behavior patterns are uniformly healthy or unhealthy), by using additive scales to count the number of health recommendations or risk criteria (Coups, Gaba, & Orleans, 2004; de Vries et al., 2008; Fine, Philogene, Gramling, Coups, & Sinha, 2004). Limited research has documented that between 10% and 20% of adults fall into discordant health behavior patterns (Patterson, Haines, & Popkin, 1994; Pronk et al., 2004), with little to no discussion of these discordant patterns. Fine and colleagues (2004) results show that 11.5% of their nationally-representative sample fall into discordant categories including drinkers who are physically active, smokers *and* drinkers who are physically active, and overweight or obese drinkers who are physically active. Further, 19% of a different sample fall into discordant categories, with only 16.5% of the total sample either meeting all or none of the healthy recommendation guidelines (Pronk et al., 2004). Studies that fail to consider health behaviors from multiple domains that reflect diverse intentions toward health, may underestimate the prevalence of discordant health behavior patterns in the U.S. Understanding the distribution and correlates of discordant health behavior patterns provides insight into the origins of those patterns and suggest how multiple-behavior interventions might be tailored to specific groups.

Third, *we consider the criterion validity of our health lifestyles,* in terms of their associations with prospective mortality. We classify individuals based on broad patterns of health behaviors that capture multiple domains of health, imply diverse intentions toward health, and have established associations with mortality (e.g., smoking, heavy drinking), promote early detection of potential health problems (e.g., visits to dentists or eye exams), or prevent future morbidity or mortality (e.g., influenza vaccinations, exercise). Thus, we expect our health lifestyle measure to have emergent properties that may reflect attitudes, behaviors, or tastes that are correlated with patterns among our observed items and that may be associated with the risk of death, even though they are unmeasured in our data. That is, our health lifestyles should remain associated with mortality, even after adjusting for the specific items used to identify our health lifestyle typologies. If our expectation is correct, then our findings will extend prior research that shows that multiple risky health behaviors are negatively related with mortality (Kvaavik, Batty, Giske, Huxley, & Gale, 2010; Saint Onge, Krueger, & Rogers, 2014), and combinations of low-risk behaviors reduce the likelihood of death (Khaw, Wareham, Bingham, Welch, Luben, & Day, 2008; Spencer et al., 2005; Ford, Zhao, Tsai, & Li, 2011).

Our second aim is to examine how these meaningful health behavior typologies vary across sociodemographic factors including race/ethnicity, age, gender, and geographic region. Those sociodemographic factors reflect structural positions that shape the practice of health behaviors (Cockerham, 2005). Indeed, sociodemographic circumstances may define settings within which behavioral niches can develop and provide norms and resources that support specific types of health lifestyles.

We expect that health lifestyles typologies will be associated with sociodemographic factors. We remain agnostic about how specific behaviors will cluster with others, or how the resulting lifestyles will be associated with specific sociodemographic factors. But research that focuses on single behaviors suggests that we should expect to see disparities in health lifestyles by race/ethnicity, age, gender, and region. For example, although non-Hispanic blacks are slightly less likely than non-Hispanic whites to smoke and tend to smoke at lower levels (NCHS, 2013), they are more likely than whites to either binge drink or abstain, while whites are more likely to drink in moderation (Dawson, 1998). Compared to whites, Hispanics are less likely to be current frequent drinkers, but also have lower levels of physical activity and are less likely to receive regular medical exams (Schiller, Lucas, Ward, & Peregoy, 2012). Gender differences can be equally challenging. For instance, counts of low-risk behaviors do not show differences by gender (Ford et al., 2011), although examination of specific behaviors shows potential discordance, with women consistently drinking less than men, but also exercising less than men (NCHS, 2013).

While aging may coalesce behaviors into more static and potentially less-risky patterns (i.e., concordance), the social and biological process of aging may also influence discordant behaviors. Most adults who currently smoke began smoking in early adulthood, and alcohol consumption at older ages is related to drinking earlier in life (Bobo, Greek, Klepinger, & Herting, 2013). Biologically, exercise becomes more difficult with age as cardiovascular function and balance decline, and the prevalence of joint problems increases. The utilization of medical care may also increase with age as the prevalence of chronic conditions increases. But social factors are also important. Middle aged adults may have higher health care utilization than younger adults, because they are more likely to have jobs that provide high quality health care, have more health recommendations, or have access to health insurance through Medicare.

Regional variations and heterogeneity in health behaviors are substantial. The U.S. South is marked by increasing mortality rates among women over time, lower levels of physical activity, and elevated rates of chronic conditions including diabetes and stroke (Centers for Disease Control & Prevention, 2014; Kindig & Cheng, 2013). Regional differences in health behaviors partially result from socioeconomic factors (i.e., poverty, low education), but also result from cultural norms, structural limitations, and disparities in health care