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## A couple-level analysis of participation in physical activity during unemployment



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#### ARTICLE INFO

# Keywords: Physical activity Unemployment Family Gender Longitudinal analysis United States Panel Study of Income Dynamics

#### ABSTRACT

There is a well-documented negative correlation between unemployment and health. Yet, little research has examined how unemployment relates to participation in physical activity, and few researchers have considered how an individual's unemployment may affect the health of their spouse or partner. The purpose of this study is to answer three questions: 1. Is one's own unemployment associated with changes in physical activity participation? 2. Is one's partner's unemployment associated with changes in physical activity participation? 3. Do changes in physical activity behaviors associated with unemployment differ by gender? This study uses nationally representative, longitudinal data on couples in the United States, covering the period 1999-2013. These data, obtained from the Panel Study of Income Dynamics, are used to estimate fixed-effects models of the relationships between one's own, and one's partner's, unemployment and participation in physical activity. I find that for men unemployment is not associated with changes in physical activity time. For women, own unemployment is associated with increases in physical activity, whereas a partner's unemployment is associated with decreases in physical activity. I argue that unemployed women, unlike men, are able to take advantage of the increased availability of time through reduced labor supply to invest in their health during unemployment, which could have positive long-run consequences. Results suggest the importance of studying unemployment and health at the household level and suggest a need for further investigation into gender differences in unemployment and health.

#### Introduction

There is a well-documented negative correlation between unemployment and health (Jin, Shah, & Svoboda, 1995, Wilson & Walker, 1993), though there has been debate about the directionality of the relationship (Salm, 2009). Moreover, many studies have focused on broad measures of health or a few specific risk behaviors, such as smoking and alcohol consumption (e.g., Deb, Gallo, Ayyagari, Fletcher, & Sindelar, 2011, Luoto, Poikolainen, & Uutela, 1998), but few studies have focused on health-promoting behaviors such as physical activity (but see Colman & Dave, 2014, Dave & Kelly, 2012). There are a number of reasons to think that individuals experiencing unemployment might not engage in as many health-promoting behaviors as during employment (e.g., because of stress or depression), yet, like with smoking and alcohol consumption, there are also reasons to believe individuals might make healthier choices during unemployment. For example, the economic hardship that can accompany job loss may reduce one's ability to consume health care, along with vices like cigarettes, leading individuals to search for ways to maintain health without the use of medical care, perhaps through physical activity or diet. Furthermore, in the Grossman model of health capital individuals make investments in health, but time investments in health are limited by labor supply (Avendano & Berkman, 2014). In the case of unemployment, the labor supply barrier is eliminated and such time investments in health could be increased, even if material investments are decreased. Prior research demonstrates that lack of time is a commonly reported barrier to exercise (Nomaguchi & Bianchi, 2004, Sallis, Hovell, & Hofstetter, 1992, Trost, Owen, Bauman, Sallis, & Brown, 2003). In this study, I focus on physical activity behaviors because of their importance for long-term health (Courneya, Mackey, Bell, Jones, Field, & Fairey, 2003, Stewart, Hays, Wells, Rogers, Spritzer, & Greenfield, 1994) and because they are severely understudied in the context of unemployment research.

While one's own unemployment is a shock that seems to influence health and health behaviors, a partner's unemployment may also be stressful or bring about a reduction in resources (Mendolia, 2014, Westman, Elzion, & Horoutz, 2004), thus influencing one's own health and well-being. Researchers studying other aspects of family life have characterized unemployment as a household experience (see, e.g., Gough & Killewald, 2011, Lundberg,

1985, Maloney, 1987). As a part of a couple, an unemployed individual could be buffered from adverse health outcomes because of the potential for resource sharing and social support. For example, Oppenheimer's (1997) theory of risk pooling suggests that couples can pool risk in ways that single individuals cannot, and this risk pooling could help attenuate the resource loss and other negative effects of unemployment. Furthermore, in a couple or family context there is the potential for a built-in support system beyond any type of resource pooling. Jackson (1992) found that spousal support was an effective buffer against economic strain, which could occur with unemployment, and she found that the shared experience of this strain was likely a driver of this buffering effect. Thus, having financial and emotional support from a partner may help an unemployed individual to make healthier choices in the face of a crisis like unemployment.

On the other hand, the potential for negative spillover of stress and anxiety between partners (Mendolia, 2014, Westman et al., 2004) could translate into negative outcomes for both unemployed individuals and their partners. Westman et al.'s (2004) study of couples in Israel found that economic hardship resulting from unemployment was a significant predictor of anxiety for both spouses in the household and that there was significant crossover of anxiety from the unemployed individual to the spouse and vice versa. Mendolia (2014) detected similar trends in couples when the husband was unemployed; both members of the couple were more likely to experience poor mental health. Stress and negative mental health outcomes for unemployed individuals and their partners could lead to a variety of negative health behaviors, including smoking, alcohol abuse, and other risk taking behaviors (Falba, Teng, Sindelar, & Gallo, 2005, Harris & Edlund, 2005, McKee, Maciejewski, Falba, & Mazure, 2003). Margolis (2013) provides similar evidence of cross-partner health behavior changes for smoking in the context of a new chronic disease diagnosis. Such couple-level analyses are limited in the research despite the wellknown association between marriage and health (Ross, Mirowsky, & Goldsteen, 1990, Waite & Gallagher, 2000). To that end, in their 2010 review of research on families and health, Carr and Springer (2010) call for more attention to both dyadic analyses of health (those focusing on both members of a couple) and a focus on specific outcomes, rather than broad measures of health and well-being.

Gender may also play a role. Research suggests that while unemployment is detrimental to both men's and women's health (Brenner & Levi, 1987, Kessler et al., 1987), men may experience more negative outcomes because they may encounter stigma as a result of their failure to successfully enact the breadwinner role (Komarovsky, 1940, McFayden, 1995, Paul & Moser, 2009). Thus, the experience of unemployment for health in a household may differ depending on whether the male or female partner is the one experiencing the unemployment.

Building from this, and Carr and Springer's (2010, p. 743) argument that researchers need to focus on the conditions under which, and for whom, family structure and context matter for health, in this study I seek to answer the following research questions: 1. Is one's own unemployment associated with changes in physical activity participation? 2. Is one's partner's unemployment associated with changes in one's own physical activity participation? 3. Do changes in physical activity behaviors associated with unemployment differ by gender? Drawing on a number of different theoretical perspectives and prior research I analyze longitudinal data from the Panel Study of Income Dynamics (PSID) to determine whether individuals change their physical activity behaviors when they or their partners experience involuntary unemployment. I examine whether these changes differ by gender, and I test robustness with supplementary and subgroup analyses.

#### **Background**

Unemployment and health

Prior research has shown unemployment to be associated with a host of undesirable outcomes, including negative health outcomes like problem drinking (Deb et al., 2011, Luoto et al., 1998) and an increased risk of suicide (Voss, Nylen, Floderus, Diderichsen, & Terry, 2004). Unemployed individuals experience worse mental health (Gallo, Bradley, Siegel, & Kasl, 2000, McInerney, Mellor, & Nicholas, 2013, Mendolia, 2014) and a greater risk of smoking relapse (Falba et al., 2005). While much research has focused on negative health behaviors, in recent years there has been increased interest in examining the relationship between unemployment and health-promoting behaviors, such as physical activity or diet (Dave & Kelly, 2012). Scant research has examined whether unemployment is associated with time in physical activity (but see Colman & Dave, 2014), and there has been even less research on how the health behaviors and physical activity of other household members may be affected by an individual's unemployment.

The mechanisms for the negative relationship between unemployment and health include the substantial reduction in income and consumption that often accompanies job loss (Chan & Stevens, 2004, Stephens, 2004) and the loss of health insurance (Levy & Meltzer, 2004). Kessler et al. (1988) found substantial evidence that financial strain was an intervening variable in the relationship between unemployment and health. Economic hardship is also known to take a psychological toll (Ross et al., 1990). Considerable research suggests that stress and depression resulting from unemployment negatively influence health behaviors (Falba et al., 2005, Gallo et al., 2000). For example, as Falba and colleagues (2005) found, even though one might expect the loss of income that accompanies unemployment to result in less consumption of tobacco, unemployment was associated with an increased risk of continuing smoking or smoking relapse, which was likely at least partially related to an increase in psychological stress. At the couple level, unemployment-induced economic hardship has been associated with a significant risk of anxiety for both spouses in the household (Westman et al., 2004).

Theoretically, unemployment could also induce positive health behaviors such as by reducing the barriers (such as lack of time) to physical activity participation. This is consistent with the Grossman model of health capital. Under this model, individuals invest in health with time and other health inputs because health increases productivity and allows one to work in the labor force (Avendano & Berkman, 2014). Among workers, labor supply provides income, which allows individuals to purchase material inputs to health, but it costs these workers time to produce health inputs such as exercise (Avendano & Berkman, 2014). Thus, unemployed individuals could invest more in exercise because the unemployment frees up time. Indeed, Xu (2013) found that hours of work were negatively associated with physical activity, but the effects were primarily a result of changes in employment status rather than changes in hours conditional on being employed. Additionally, since part of the motivation for health investments is to increase productivity in the labor market (Avendano & Berkman, 2014), the unemployed may use this time to invest in exercise that could improve one's chances of reemployment and/or increase one's productivity upon reemployment.

Overall, the prior literature on unemployment and health leads me to two competing hypotheses:

**Hypothesis 1 (H1).** Unemployment will be associated with negative changes in physical activity participation.

**Hypothesis 2 (H2).** Unemployment will be associated with positive changes in physical activity participation.

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