Social Science & Medicine 201 (2018) 18–26

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

How health behaviors link romantic relationship dysfunction and physical health across 20 years for middle-aged and older adults

Patricia N.E. Roberson*, Rebecca L. Shorter, Sarah Woods, Jacob Priest

University of California, Davis, USA

ARTICLE INFO

Keywords:
Marriage quality
Chronic illness
Health behaviors
Sleep quality
Binge drinking
Smoking
Diet
Exercise

ABSTRACT

Rationale: There has been substantial research linking marital quality to physical health outcomes; however, the mechanisms linking marital quality and physical health have been studied less extensively, especially with longitudinal data. Of the hypothesized mechanisms, only psychological distress (anxiety/depression) and physiological mechanisms (inflammation) have been tested and confirmed. Health behaviors such as diet, exercise, smoking, drinking, and sleeping have not previously been examined as mechanisms linking marital quality and physical health.

Objective: The present study tests how the emotional influence of the marital relationship is linked to subsequent health outcomes through behavioral mechanisms. A biopsychosocial theoretical model, the Biobehavioral Family Model (BBFM), is used to hypothesize the mediating paths between marital dysfunction and physical health.

Method: The study hypotheses are tested with publicly accessible survey data, Midlife in the United States (MIDUS). We examined married or cohabiting participants ($N = 5023$) across the three time points of MIDUS, or 20 years. Specifically, we tested whether five health behaviors at Time 2 (smoking, alcohol, sleep, food to cope, and physical activity) function as mechanisms linking marital dysfunction (Time 1) to subsequent physical health (Time 3). We tested each health behavior as a mechanism in a series of mediating Structural Equation Models.

Results: Two health behaviors were significant mechanisms (food to cope and physical activity), while three were not (smoking, alcohol, and sleep).

Conclusion: Diet and exercise are mechanisms linking marital dysfunction and health across 20 years because they may be linked to the emotional influence and not functional influence of the marriage context. According to the BBFM, diet and exercise may be part of the mediating construct of the model (i.e., biobehavioral reactivity), which explains how emotional stress from a marriage may produce declines in physical health over time. Implications for biopsychosocial healthcare interventions are discussed.

1. Introduction

Close, supportive marriages are consistently linked to improved health outcomes including healthier (risk-reducing) behaviors, reduced morbidity and mortality, and improved physical and emotional health (House et al., 1988; Kiecolt-Glaser and Newton, 2001; Umberson et al., 2010). Conversely, poor marital quality is linked to worse health outcomes including earlier all-cause mortality, increases in morbidity, and worse mental health (e.g., Carr and Springer, 2010; Woods et al., 2014). Despite the repeated substantiation of these marriage-health associations, the mechanisms of effect linking marital quality and health remain unclear (Carr and Springer, 2010). There is evidence that psychophysiological reactions to marital stress are one critical link (Priest et al., 2015). However, health behaviors have only been proposed as a mechanism linking marital quality and health (Beverly et al., 2008; Chopik and O'Brien, 2016; Kiecolt-Glaser and Newton, 2001; Weihs et al., 2002) and have not yet been tested in a full mediating model. The aim of the current study is to add health behaviors to the literature on social models of health promotion through the expansion of an existing biopsychosocial model of health to adults: the Biobehavioral Family Model (BBFM; Wood, 1993). The BBFM models the effects of broader relationship functioning (including marital and other family relationships) on physical health outcomes, through individual family members' stress reactivity (Wood et al., 2008). The original specification of this mediating stress pathway included individuals' *behavioral* reactivity (Wood, 1993), but behavior as an operationalization has yet to be

* Corresponding author. University of California, Davis, Department of Human Ecology, One Shield Ave, Davis CA 95616, USA.
E-mail address: proberson@ucdavis.edu (P.N.E. Roberson).

https://doi.org/10.1016/j.socscimed.2018.01.037
Received 14 August 2017; Received in revised form 10 January 2018; Accepted 27 January 2018
Available online 03 February 2018

tested. Therefore, we will examine health behaviors (i.e., physical activity, diet, sleep, alcohol use, and smoking) as a component of the BBFM's mediating pathway. Results of this study will point to the role that health behaviors play in the biopsychosocial unfolding of health outcomes during adulthood, and work to further uncover why marriage and physical health are so closely linked (e.g., Kiecolt-Glaser et al., 2010; Umberson et al., 2010).

1.1. Health behaviors

Marital relationships play a critical role in shaping health behavior and lifestyle changes over time (Beverly et al., 2008; Chopik and O'Brien, 2016; Kiecolt-Glaser and Newton, 2001). As such, there is a growing emphasis in the extant literature on the dyad, situating individual's health behaviors and outcomes within the broader context of social relationships, rather than examining these factors in isolation (Chopik and O'Brien, 2016; Hoppmann and Gerstorf, 2014; Lewis et al., 2006; Troxel, 2010). Health behaviors have been proposed as a potential mediator, or indirect pathway, through which the marital relationship may negatively or positively affect health outcomes (Kiecolt-Glaser et al., 2010; Umberson et al., 2010). Broadly, the literature offers two explanations for the link between marital quality and health behaviors: (a) Health behaviors can result from socially promoted, encouraged, or learned behaviors, with reciprocal influence between individual spouses, which is labeled *functional influence* here. Functional influence can potentially manifest as effective communication patterns (Weihs et al., 2002). In addition, (b) health behaviors can develop as a means of coping with perceived marital stress (Krueger and Chang, 2008), which is labeled *emotional influence* here. Therefore, some health behaviors may be a result of functional influence, such as a spouse's reminder to take medication or spousal food preparation and other health behaviors may be a result of emotional influence such as a conflictual marriage that results in eating as a stress-reducing coping strategy. While there is evidence that the marital context is linked to health behaviors, it is not clear which health behaviors, if any, mediate the association between marital distress and general health outcomes.

Smoking, namely the persistence to smoke and failure to quit, is linked to marital stress (Slopen et al., 2013). In fact, psychosocial stressors more broadly are risk factors for smoking (e.g., Slopen et al., 2013; Stein et al., 2008), while smoking cessation is linked to relationship satisfaction (Foulstone et al., 2017). Among married individuals who reported more emotional intimacy with their partner, they were more likely to smoke fewer cigarettes 9 years later (Derrick et al., 2013). In fact, satisfaction with a marriage does not appear to be enough to reduce smoking in its entirety, as multiple marital characteristics, including emotional intimacy, partner cohesion (i.e., how well the partners get a long), and partner consensus (i.e., the amount of agreement shared between the spouses about major life domains), are also linked to reduced smoking (Derrick et al., 2013; Scholz et al., 2013). Therefore, poorer marital quality may be linked to health outcomes through smoking (a) if individuals use smoking as a coping mechanism or (b) if support from the marital relationship can help the individual overcome barriers to smoking cessation.

The links between heavy alcohol consumption and marital quality are mixed. Increases in binge drinking among older adults as been linked bi-directionally to poorer marital quality for women, but, for men, only poor marital quality was linked to increased binge drinking in a unidirectional fashion (Roberson et al., in press). In a younger population, high relationship satisfaction was linked to lower alcohol consumption *and* a greater willingness to decrease alcohol consumption among those who were engaged in drinking behaviors (Khaddouma et al., 2016). Conversely, for men occupying multiple caregiving roles, increases in marital support was linked to more drinking in a cross-sectional model (DePasquale et al., 2016). It is clear that there *is* a link between marital quality and drinking; however, the direction of this association and the type of marital influence (emotional vs functional) is unclear based on the existing research.

Poor sleep appears to be linked to poor marital quality bi-directionally (Lee et al., 2017; Troxel et al., 2007). However, in a longitudinal intervention, increases in relationship quality were linked with a 36% decrease in the risk of insomnia (Troxel et al., 2017). For men, a cross-sectional model showed that the impact of marital quality on poor sleep is particularly noticeable when they have multiple caretaking roles (e.g., caring for children and elderly parents) and their marital strain is high (DePasquale et al., 2016). But, it is difficult to determine the directionality of this association as poor sleep is also linked to greater conflict the next day (Gordon and Chen, 2014). Marital quality and sleep appear to have a cyclical association, however, it is unclear how their interaction operates over time to influence health outcomes. Because sleep deprivation can increase agitation and one's ability to communicate effectively, and stress from poor marital quality can disrupt sleep, both the functional and emotional influence of marital quality may impact health through sleep.

When considering eating habits, greater partner support increases healthy eating while greater partner strain increases unhealthy eating behaviors (Kiecolt-Glaser and Newton, 2001). One form of unhealthy eating is consuming fast-food, which may be linked to an effort to save time and reduce stress especially among those who occupy numerous social roles simultaneously (Hamrick and Okrent, 2014; DePasquale et al., 2016). Further, when examining diabetes-specific populations, functional influence from a spouse appears to influence eating habits (Nicklett et al., 2013; Strom and Egede, 2012). Therefore, marital quality could influence health through both afunctional and emotional influence.

The direct link between physical activity and marital quality has not been examined extensively; what has been examined focuses on a diabetic population. In couples, the experienced stress linked to diabetes from both the spouse and patient are negatively linked to the patients' physical activity frequency (Anderson et al., 2016). Also, a couple's shared beliefs about how to manage a disease may improve physical activity maintenance (Beverly and Wray, 2008). The link between marital context and physical activity is complex, as spousal support and control over health behaviors can independently and jointly influence partners' physical activity (Khan et al., 2013). There appears to be some evidence that the intense negative emotions in the social context of marriage influences physical activity, which are predictive of health outcomes.

In general, health behaviors appear to precede physical health outcomes which are preceded by relationship quality, although this temporal ordering is not always clear (Kearns-Bodkin and Leonard, 2005). Evidence supports the need to include health behaviors as mediators in research to aid in the development of public health interventions to improve health behavior and lifestyle change (Robles, 2014; Robles et al., 2014). We propose that health behaviors triggered by the emotional influences of marriages will link marital dysfunction and physical health outcomes.

1.2. The biobehavioral family model (BBFM)

In addition to empirical evidence, theoretical models hypothesize that health behaviors link marital quality and health outcomes. The BBFM is a biopsychosocial approach (Engel, 1977) and multi-level interactive systems model (Wood et al., 2015) that explores the ways in which family functioning interacts with psychophysiological factors to affect the physical health outcomes of individual family members. Developed from a general systems paradigm (von Bertalanffy, 1969), the BBFM is a reformulation of the “psychosomatic family model” (Minuchin et al., 1975) that theorizes a model about the reciprocal influence of social, emotional, behavioral, and physiological factors at both the individual and the interpersonal (family) level. The BBFM incorporates family functioning, psychological health, and physical health into one comprehensive model and postulates that close