

## Marital Status and Health Beliefs: Different Relations for Men and Women

Charlotte N. Markey,<sup>1,4</sup> Patrick M. Markey,<sup>2</sup> Carl Schneider,<sup>3</sup> and Susan Brownlee<sup>3</sup>

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Although relations between marital status and health have been substantiated, the results of relatively few studies suggest *how* or *why* marriage is associated with health. To understand how marriage and health are associated, this study was designed to examine the role of health beliefs. Two thousand two hundred and six (2,206) adults who participated in the New Jersey Family Health Survey provided information about their marital status, proactive health beliefs, and proactive health behaviors. Results indicated that being married (vs. single) was positively associated with men's proactive health beliefs, whereas marriage did not appear to influence women's proactive health beliefs positively. Significant relations between participants' reports of proactive health beliefs and proactive health behaviors were found. Findings are discussed in terms of the importance of understanding the complex nature of associations between social relationships and health.

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Even the earliest "health psychologists" (e.g., Hippocrates) understood that individuals' lives are inevitably interconnected and social interactions contribute to health and well-being. Modern psychological research continues to provide evidence for this notion, such as the finding that social relationships with meaningful others can have health-enhancing effects (House, Landis, & Umberson, 1988). Of course, the impact of some relationships may be more critical than the impact of others, with more intimate and central relationships of potentially greater importance in determining individuals' health (House et al., 1988; Kiecolt-Glaser & Newton, 2001). For the majority of adults, relationships with

their spouses are their most intimate and central relationships, and research has accumulated across the past few decades to provide a fairly clear picture of the potentially positive associations between marriage and health (Horwitz, White, & Howell-White, 1996; Markey, Markey, & Birch, 2001).

Studies of marital interactions suggest that marital functioning generally impacts physiological functioning, including cardiovascular, endocrine, and immune functions (Kiecolt-Glaser & Newton, 2001). More specifically, associations have been found between marriage and health outcomes, such that married individuals have better health experiences than nonmarried individuals in terms of pain and pain-related disability, substance abuse, periodontal disease, rheumatoid arthritis, cardiovascular functioning, neurological disorders, ulcers, depression, self-reports of overall health status, and longevity (Carels, Sherwood, & Blumenthal, 1998; Coughlin, 1990; Kiecolt-Glaser & Newton, 2001; Levenstein, Kaplan, & Smith, 1995; Marcenes & Sheiham, 1996; Medalie, Stange, Zyanski, & Goldbourt, 1992; O'Farrell, Hooley, Fals-Stewart, & Cutter, 1998;

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<sup>1</sup>Department of Psychology, Rutgers University, Camden, New Jersey.

<sup>2</sup>Department of Psychology, Villanova University, Villanova, Pennsylvania.

<sup>3</sup>Center for State Health Policy, Rutgers University, New Brunswick, New Jersey.

<sup>4</sup>To whom correspondence should be addressed at Department of Psychology, Rutgers University, 311 North 5th Street, Camden, New Jersey 08102; e-mail: chmarkey@camden.rutgers.edu.

Tucker, Friedman, Wingard, & Schwartz, 1996; Turk, Kerns, & Rosenberg, 1992; Vitaliano, Young, Russo, Romano, & Magana-Amato, 1993; Zautra et al., 1998). Despite the accumulating evidence that supports consequential links between marriage and health, in their classic review of the literature through 1990, Burman and Margolin (1992) suggested that minimal information is available to explicate *how* or *why* marriage is associated with health.

It has been posited that marriage may serve as a source of health-promotion by somehow encouraging positive health behaviors, which over time culminate and facilitate desirable health outcomes and even longevity (Kiecolt-Glaser & Newton, 2001; Lewis, Rook, & Schwarzer, 1994). The social support and enhanced psychological well-being associated with being in a satisfying marital relationship may also contribute to health (Gove, Hughes, & Style, 1983; Markey et al., 2001). However, the inevitable complexity of these relations and the correlational nature of the majority of past studies make it difficult to discern the most substantial paths of influence from marriage to health. Further, these explanations have not been able to explain fully the reported gender differences in the positive effects of marriage.

Significant gender differences in the protective effect of marriage have been reported: nonmarried men have 250% greater mortality than married men, and nonmarried women have 50% greater mortality than married women (Ross, Mirowsky, & Goldsteen, 1990). Different health behaviors, women's roles as caretakers (i.e., encouraging other family members'—including their husbands'—healthy habits), differences in physiological reactivity to stress, and women's tendencies toward greater social integration than men (regardless of marital status) are reasons that have been suggested to explain this gender difference (Courtenay, 2000; Ewart, Taylor, Kraemer, & Agras, 1991; Kiecolt-Glaser & Newton, 2001; Phillipson, 1997). However, explanations regarding gender differences in relations between marriage and health are far from unequivocal; it remains unclear *how* marital status is differentially associated with health for men and women.

One possible route linking marriage and health outcomes may be health beliefs. Evidence indicates that changes in health status appear to emerge as a result of marital status. In other words, relations between marital status and mortality risk cannot be accounted for by health status prior to marriage, and even subtle changes in marital experience have

been associated with subsequent changes in health and well-being (House, Robbins, & Metzner, 1982; Seeman, Kaplan, Knudsen, Cohen, & Guralnik, 1987; Wickrama, Lorenz, Conger, & Elder, 1997). Thus, it is important to examine how the act of getting married leads to improvements in health. Do married individuals begin to think differently about their health and to develop more proactive health beliefs? For example, are married individuals more likely than their unmarried counterparts to believe it is important to find the time to go to the doctor?

The Health Belief Model (Hochbaum, 1958; Rosenstock, 1990) provides a framework for conceptualizing the potential importance of health beliefs. According to this model, four beliefs are important in determining individuals' health behaviors: the perceived susceptibility to disease or disability, the perceived severity of a disease or disability, the perceived benefits of health-enhancing behaviors, and the perceived barriers to health-enhancing behaviors. A number of studies (see Janz & Becker, 1984, for a review) suggest that these health beliefs are important contributors to health, including participation in preventative health behaviors (i.e., proactive health behaviors or procedures that have the potential to prevent illness, such as receiving a flu shot). Further, researchers have been able to use this model to understand why some individuals do not participate in programs and procedures that are designed to prevent or detect health problems (Rosenstock, 2004).

The Health Belief Model is not the only model that suggests the critical role of beliefs in health-related behaviors. Growing evidence that indicates the important function of self-efficacy (e.g., Bandura, 1986) and optimistic beliefs about health (e.g., Reed, Kemeny, Taylor, Wang, & Visscher, 1994) in determining positive health outcomes further highlights the importance of examining health beliefs as predictors of health outcomes. Thus, although there is little agreement among health psychologists regarding the model or theory that best represents the role of health beliefs in determining individuals' health and well-being (Ogden, 2003; Weinstein, Rothman, & Sutton, 2003), it seems clear that understanding individuals' health beliefs is an important step toward predicting whether or not they will participate in behaviors conducive to health maintenance. Given the potential importance of health beliefs, in this study we examined relations between marital status and health beliefs.

### Aims of This Study

Past researchers have focused primarily on marital status as a determinant of health outcomes, whereas we aimed to determine if marital status is associated with health beliefs. Because beliefs are typically conceptualized as an integral component of health-decision-making, an understanding of the relations between marriage and health beliefs may provide insight into the role of marriage in the formation of health-promoting behaviors. To help substantiate the potential importance of health beliefs, relations between participants' health beliefs and their participation in preventative and health-promoting behaviors were also examined. On the basis of the past research that indicates positive associations between marriage and health, it was hypothesized that the participants in this study who were married, especially men, would report more proactive health beliefs than their nonmarried peers. Further, it was expected that participants' proactive health beliefs would be associated with their participation in behaviors that are preventive and potentially health-protective.

## METHOD

### Participants

Participants were 2,265 adults (699 men and 1,566 women; mean age = 48.74 years,  $SD = 17.15$ ). Participants in this study were part of the New Jersey Family Health Study, a representative sample of households in the state of New Jersey (59.3% of households contacted agreed to participate). Participants were of diverse ethnic and socioeconomic backgrounds; 76% of participants identified themselves as White or European American, 14% as Black or African American, 5% as Hispanic, 2% as Asian/Pacific Islander, less than 1% as Indian/Native American, 1% as "other," and the rest of the sample (approximately 1%) either refused or reported that they did not know their ethnicity. Of participants who had knowledge of, and were comfortable revealing information about their income ( $n = 1,777$ ), 29.5% of families reported incomes below \$30,000, 37.5% of families reported incomes between \$30,000 and \$60,000, and 33% of families reported incomes above \$60,000.<sup>5</sup> The sexual orientation of these par-

ticipants is not known, but given the representative sampling technique utilized in this study, it is likely that sexual orientation is distributed in a manner similar to the general population. Seven respondents were not included in the analyses because of incomplete or missing data on the measures described below and 52 individuals who reported being "separated" from their spouses were excluded on the basis of the relatively small sample of this group of people and the potential lack of homogeneity (e.g., regarding living arrangements) associated with this group (i.e., final  $n = 2,206$ ).

### Measures

Measures used in this study were included in a survey designed to assess family health. Marital status was assessed by asking respondents to indicate whether they were (a) married, (b) living with a partner, (c) single and never married, (d) widowed, or (e) divorced. One thousand two hundred and thirty-one (1,231) participants said they were married, 87 were living with a partner, 408 were single and never married, 236 were widowed, and 244 were divorced.

Health beliefs were assessed with four items: (1) "If you wait long enough, most health problems will go away by themselves," (2) "For the most part, I only go to the doctor when a health problem gets bad," (3) "Even when I am sick, I prefer not to take medicines," and (4) "I have problems finding time to get to the doctor." These items are conceptualized as a measure of the extent to which individuals' maintain proactive health beliefs. The second and third items were adapted from the Rutgers Aging and Health Study (see Brownlee, 1997, for a complete description), and the first and fourth items were created for the purposes of this study. Items were answered on a Likert scale that ranges from 1 to 4 (1 = *strongly agree*, 4 = *strongly disagree*). Thus, items were coded so that higher scores indicated participants' positive beliefs (i.e., more proactive) about the importance of being involved in their health maintenance. Participants' average score on this assessment of proactive health beliefs was 2.93 ( $n = 2,206$ ,  $SD = 0.73$ , range = 1–4,  $\alpha = .53$ ).

Proactive behaviors were assessed with five items intended to measure participants' utilization of procedures that have the potential to prevent illness

<sup>5</sup>Income information is provided to help describe the participants that comprise this sample. However, because income is not asso-

ciated with the primary outcome of interest, health beliefs ( $r = .00$ ,  $p > .05$ ), it was not included in analyses that follow.

or provide early detection of health problems. Specifically, all participants were asked to indicate (yes = 1 or no = 0) whether or not they had received a flu shot in the past 12 months. All participants 50+ years of age were asked if they had ever received a screening for colorectal cancer. All women 45+ years of age and men 35+ years of age were asked if they had ever received a blood test for cholesterol. Women 40+ years old were asked to indicate if they had ever had a mammogram, and men 50+ years old were asked to indicate if they had ever had a prostate exam. These health behaviors are routinely assessed in large national surveys of health (e.g., the Centers for Disease Control and Prevention's [CDC] Behavioral Risk Factor Surveillance System; CDC, 2004) as they provide a general assessment of individuals' participation in preventative behaviors. Ages were specified for these items in accordance with current medical guidelines that suggest the appropriateness of screenings for men and women in certain age groups (i.e., a medical provider would be unlikely to recommend a mammogram to a man or cholesterol test to a 20-year-old patient). Because all participants were not asked the same questions, these items were examined individually as correlates of health beliefs.

### Procedure

Participants were contacted via phone for an interview that lasted approximately 35–40 min. When households were contacted, the investigator asked to speak with the adult who “lives in the home and is most familiar with the health care and health insurance needs of the members of the household.” Participants were provided with a brief description of the study and its potential to shape New Jersey's management and regulation of health care. It was made clear that participation was voluntary, responses were confidential, and compensation in the form of a \$10.00 check would be awarded upon completion of the survey. All procedures followed the ethical standards of the American Psychological Association and were approved by the Institutional Review Board at Rutgers University.

### RESULTS

To determine whether or not marital status was associated with participants' proactive health beliefs,

an omnibus ANOVA was conducted. This analysis indicated that participants with different marital statuses (married, single, widowed, living together, or divorced) scored significantly differently on the measure of health beliefs,  $F(4, 2,201) = 11.34, p < .0001$ . Figure 1 presents the mean health belief score for each marital status category, as well as the corresponding 95% confidence intervals.

As suggested by Fig. 1, *t* tests computed using the  $MS_{error}$  from the earlier analysis indicated that widowed individuals had significantly higher health beliefs than individuals who were married,  $t(2,201) = 4.95, p < .01$ , single,  $t(2,201) = 5.79, p < .01$ , divorced,  $t(2,201) = 4.83, p < .01$ , or living with a significant other,  $t(2,201) = 4.96, p < .01$ . In addition, married individuals had higher health belief scores than participants who were single,  $t(2,201) = 2.95, p < .01$ , divorced,  $t(2,201) = 1.97, p < .05$ , or living with a significant other,  $t(2,201) = 2.86, p < .01$ . No significant differences in health beliefs were found between participants who were single, divorced, or living with their significant others. More central to the main hypothesis of this study, differences were found between married participants and single participants (see Table I). Further, married participants ( $M = 49.30, SD = 15.46$  years) were found to be significantly older than single participants ( $M = 36.06, SD = 14.08$  years),  $t(1,627) = -15.28, p < .01$ , and proactive health beliefs were positively associated with participants' age,  $r(2,206) = .25, p < .01$ .

To control for participants' age and to explore relations among gender and health beliefs for married and single individuals, a regression analysis was conducted. Table II presents the results of this analysis, which indicated that even after we controlled for age, there was an interaction between marital status and gender in predicting participants' proactive health beliefs. Figure 2 portrays this interaction and the simple slopes of men and women who are 30 years old.<sup>6</sup> As indicated by the simple slopes in this graph, the predicted mean health beliefs score for single women was 2.75, and the predicted mean health belief score for married women was 2.64. Subsequent analyses of this slope indicated that this .11 mean drop was significant,  $t(1,634) = -2.05, p < .05$ . In addition, as indicated by the simple slopes in Fig. 2, the predicted mean health belief score for single men was 2.56, and the predicted mean health belief score for married men was 2.70. Subsequent

<sup>6</sup>Age 30 was arbitrarily chosen to graph this interaction; the graph would look similar if any other age was chosen.

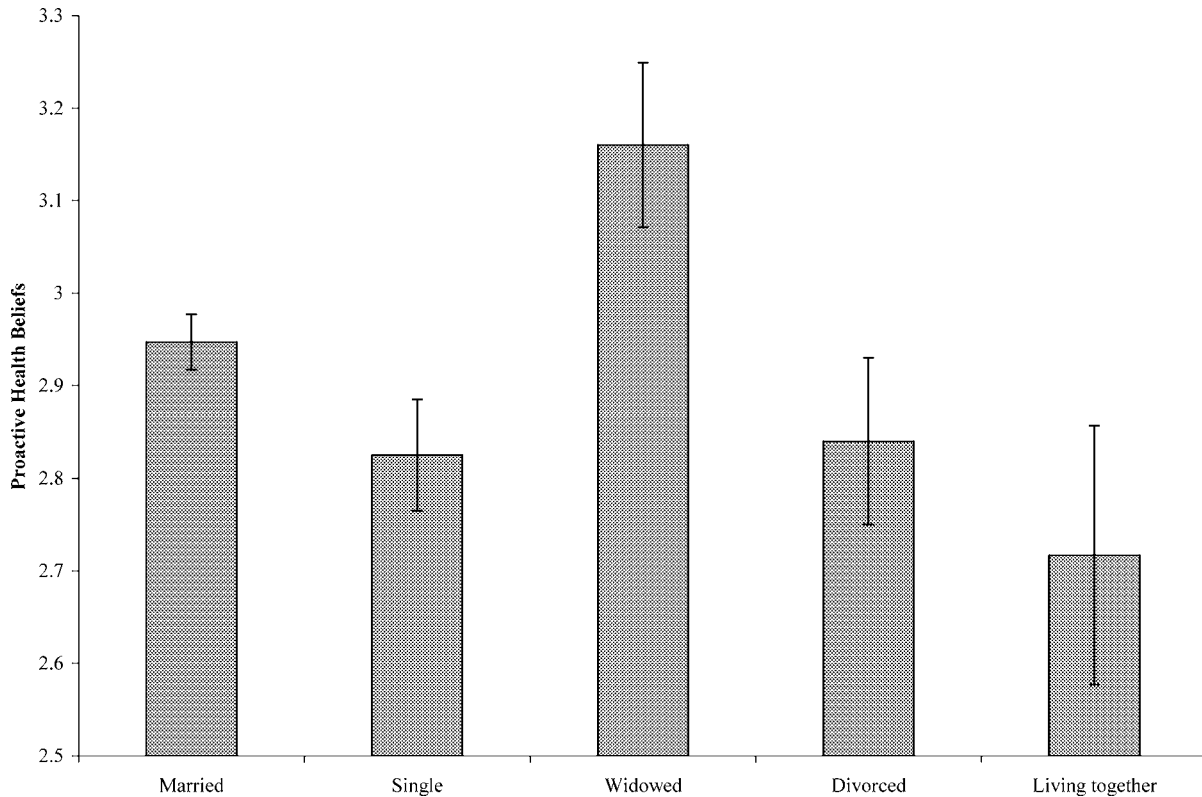


Fig. 1. Mean proactive health beliefs of single, cohabitating, married, divorced, and widowed individuals.

analyses of the simple slope indicated that this .14 mean increase was significant,  $t(1,634) = 2.00, p < .05$ . These results suggest that men who are married have more proactive health beliefs than their single peers, whereas married women’s health beliefs are actually lower than their single peers.

Finally, to help substantiate the importance of understanding the relations among marriage, proactive health beliefs, and actual health behaviors, Table III presents the correlations between these variables after we controlled for age of all married and single participants who provided health behav-

ior data. As seen in this table, men who were married were more likely to undergo colorectal cancer screening, cholesterol screening, and prostate exams than were men who were single. For women, no relations between health behaviors and marital status were found. In addition, this table suggests

Table I. Means and Standard Deviations of Proactive Health Beliefs and Differences Between Means for Single, Cohabiting, Married, Divorced, and Widowed Men and Women

	Men, mean (SD) [n]	Women, mean (SD) [n]	t
Married	3.00 (.73) [425]	2.91 (.74) [806]	1.94*
Living together	2.72 (.72) [28]	2.71 (.65) [59]	.06
Single	2.69 (.77) [149]	2.90 (.71) [259]	-2.77**
Widowed	3.06 (.64) [39]	3.19 (.70) [197]	-1.13
Divorced	2.91 (.71) [44]	2.83 (.71) [200]	.68

\* $p \leq .05$ . \*\* $p < .01$ .

Table II. Summary of Regression Analyses that Predict Proactive Health Beliefs

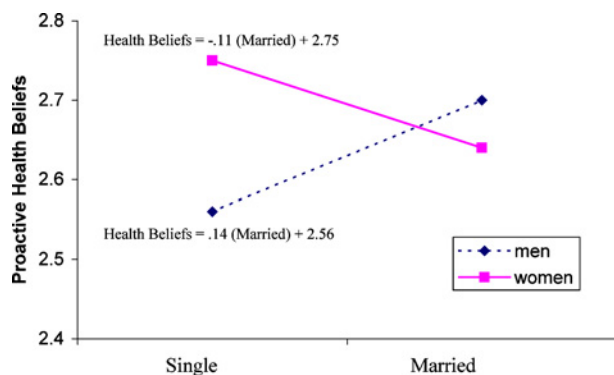
Predictors	B	SE(B)	$\beta$
Step 1 <sup>a</sup>			
Constant	2.42		
Gender	-.011	.037	-.007
Age	.011	.001	.248**
Marital status	-.028	.044	-.016
Step 2 <sup>b</sup>			
Constant	2.45		
Gender	-.191	.074	-.126*
Age	.010	.001	.244**
Marital status	-.107	.053	-.067*
Gender × marital status	.247	.085	.147**

Note. Marital status is coded: single = 0, married = 1. Gender is coded women = 0, men = 1.

<sup>a</sup>Step 1:  $df = 3, 1,635; R^2 = .06; p < .01$ .

<sup>b</sup>Step 2:  $df = 4, 1,634; \Delta R^2 = .05; p < .01$ .

\* $p < .05$ . \*\* $p < .01$ .



**Fig. 2.** The interaction between gender and marital status at the age of 30 when predicting proactive health beliefs. Participants' age of 30 was arbitrarily chosen to graph this interaction; the graph would look similar if any other age was chosen.

the potential importance of proactive health beliefs in predicting actual health behaviors. For both men and women, significant relations were found between proactive health beliefs and reports of participation in all relevant proactive health behaviors.

## DISCUSSION

Past research indicates the important role health beliefs may play in determining individuals' health behaviors and outcomes (Janz & Becker, 1984; Rosenstock, 2004). In the present study we investigated relations among gender, marital status, and health beliefs. Findings indicated that individuals who were widowed (i.e., previously married) or married were most proactive in their health beliefs. It is likely that these relations were partially due to the associations identified between age and proactive beliefs. Subsequent analyses, in which we controlled for age, showed that gender moderates the relation between marital status and health beliefs. Specifically, single women were more proactive in

their health beliefs than married women, but married men were more proactive in their health beliefs than single men. These findings are interesting given that single men scored lower than any other group on the assessment of health beliefs, which indicates that they did not see being actively involved in their health care (e.g., going to the doctor when they were not well) as important. It appears that marriage may positively affect men's beliefs about the importance of their health.

The gender difference between married and single men's health beliefs may indicate that when men get married their wives positively impact their health beliefs. Although the data available in this study cannot allow us to determine this conclusively, this explanation is consistent with past research that indicates that women tend to initiate the majority of difficult conversations in which couples participate and are typically found to be more proactive in dealing with difficult and/or important issues that need to be addressed (Ball, Cowan, & Cowan, 1995; Gottman & Notarius, 2002). In other words, it is possible that, consistent with gender stereotypes that describe women as "nurturing caretakers" (Courtenay, 2000), women initiate conversations about health care and the importance of health maintenance, thereby helping to improve their husbands' health beliefs. However, it appears that women's beliefs may be negatively affected by marriage. Perhaps, the time and energy women spend caring for their husbands and other family members leaves them less time and energy to focus on their own health. This explanation is consistent with the literature on the difficulty many women have in balancing multiple roles: professional, wife, and mother (Erlandsson & Eklund, 2003). It will be interesting to continue to explore these issues as women are increasingly pursuing their own careers and thus have to juggle personal, professional, and family demands.

**Table III.** Correlations Between Married and Unmarried Participants' Proactive Health Beliefs and Participation in Different Health Behaviors After Controlling for Age

	Flu shot	Colorectal cancer screening	Cholesterol screening	Mammogram	Prostate exam
Women's marital status	.03 (1,051)	.07 (352)	.02 (482)	.00 (458)	<i>na</i>
Men's marital status	.01 (565)	.31** (205)	.11* (407)	<i>na</i>	.27** (206)
Women's health beliefs	.09** (1,051)	.11* (352)	.12** (482)	.10* (458)	<i>na</i>
Men's health beliefs	.15** (565)	.33** (205)	.20** (205)	<i>na</i>	.14* (206)

*Note.* Marital status is coded: single = 0, married = 1. All health behaviors are coded: no = 0, yes = 1.

\* $p < .05$ . \*\* $p < .01$ .

These differences in married men's and women's proactive health beliefs may also result from early socialization experiences and the roles they have traditionally adopted with marriage. The increase in men's proactive health beliefs when they get married may result from an increased sense of responsibility and a need to care for themselves in order to provide for others (e.g., as a breadwinner; Eagly, 1987). Consistent with this notion, Courtenay (2000) presented a social constructionist approach to gender and health, which suggests men view dealing with health issues as a sign of femininity or "weakness" and a topic to be avoided in the company of other men. However, in the company of a spouse, health concerns may have different meanings, and men may feel less inclined to present themselves as invincible, rugged, or risk-taking; instead, they may even identify their health beliefs and behaviors as an integral component of their relationship with their significant other. In contrast, research indicates that women are socialized to view themselves as caretakers and to provide selflessly for others (Eagly, 1987). Thus, a woman's role as a wife may leave her less likely to view her own health care as a priority, and more likely to provide care for other members of her family.

Links identified in this study between proactive health beliefs and proactive health behaviors are consistent with past theory and research, which indicate that beliefs play an important role in determining individuals' health behaviors (Rosenstock, 1990). In particular, this finding is consistent with the Health Belief Model, which posits relations between individuals' health beliefs and their willingness to avoid health-compromising behaviors and adopt health behaviors that are protective. Of course, research on the Health Belief Model suggests that other beliefs (e.g., perceived barriers to health-enhancing behaviors) are also integral to individuals' decisions to behave in health-enhancing ways, and these should be considered in future efforts to improve individuals' proactive health behaviors (Aiken, West, Woodward, & Reno, 1994; Rosenstock, 2004).

### Limitations

The current study presents results, derived from a relatively large ( $n = 2,206$ ) and representative sample, that link marital status and health beliefs. However, this study is limited because of a lack of information concerning participants' marital satisfaction.

Although clear relations between marital status and health are apparent in this report, the extent to which these relations are modified by the subjective experience of marriage falls outside the insights possible to glean from these data. In addition, information about participants' sexual orientation may have the potential to further illuminate the role of gender in associations between romantic relationships and health beliefs. The measure of health beliefs would potentially have been more informative if it included a greater number of items pertaining to participants' health beliefs. The health behavior assessment is limited by the applicability of some of these items to only some participants and the relatively few items that comprise this measure. Because data concerning individuals' proactive health behaviors were not available for all participants (based on age and gender guidelines regarding to whom these items are relevant), it was not possible to examine mediational relations between participants' marital status, health beliefs, and behaviors. Finally, the extent to which these findings are generalizable to individuals living outside of New Jersey is unknown.

### Conclusion

Relations between marriage and health have long been discussed, and empirical data suggest the protective effects of marriage (Burman & Margolin, 1992; Horwitz et al., 1996; House et al., 1988). In addition, marriage has been found to impact men's and women's health differentially, such that men appear to benefit more than women from having a spouse (Ross et al., 1990). However, it has remained unclear *how* marriage positively affects health, especially for men (Burman & Margolin, 1992). On the basis of theory and research that suggest that health beliefs are integral to health behaviors and outcomes (Reed et al., 1994; Rosenstock, 1990), we examined relations between marital status and health beliefs in an attempt to understand the links between marriage and health. Findings indicate that married men maintain more proactive health beliefs than single men, whereas single women maintain more proactive health beliefs than married women. Further, the finding that proactive health beliefs were associated with proactive health behaviors among participants in the present study provides support for the importance of these beliefs.

Although these findings highlight the potentially positive relations between marriage and health (at

least for men), it would be an oversimplification of this research to suggest that marriage is inevitably positive. Being married may have a deleterious impact on health, particularly if the marital relationship is stressful and presents a strain on psychological and physical well-being (Burman & Margolin, 1992; Gottman & Notarius, 2002). Further, cohabitating with a significant other does not appear to have the same health benefits as marriage; individuals who cohabit with a significant other tended to have fewer proactive health beliefs than did married individuals. Future researchers should continue to explore the positive and negative consequences of relationships with significant others for individuals' health beliefs, behaviors, and outcomes. Tentatively, the findings from this study of marital status, health beliefs, and health behaviors suggest that the path from marriage to positive health outcomes may be via proactive health beliefs.

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