

Masculinity and perceived normative health behaviors as predictors of men's health behaviors

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Abstract

This study examined the unique contributions of masculinity and men's perceptions of the normativeness of men's and women's health behaviors in predicting men's self-reported health behaviors. One hundred and forty men aged 18–78 were recruited from 27 unmoderated and moderated Internet listservs of potential interest to men. They completed measures online assessing masculinity, their perceptions of normative health behaviors for men and women, and 8 health behaviors (i.e., alcohol abuse, seatbelt use, tobacco use, physical fighting, use of social support, exercise, dietary habits, and receipt of annual medical check-ups). Findings suggest that masculinity and the perceived normativeness of other men's health behaviors significantly predicted participants' own health behaviors beyond that accounted for by socio-demographic variables (e.g., education, income). Perceptions of the normativeness of women's health behaviors were unrelated to participants' health behaviors. The findings support previous research which has found that traditional masculine gender socialization and social norms models encourage men to put their health at risk, and suggest directions for health promotion efforts when working with men.

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Introduction

Men have shorter life-spans than women in most countries around the world (Arias, Anderson, Kung, Murphy, & Kochanek, 2003; Mathers, Sadana, Salomon, Murray, & Lopez, 2001; White & Cash, 2003; World Health Organization, 2000). For example, men in the US die 5.4 years earlier than women, have a 43 percent greater age-adjusted death rate, and die at higher rates than women from 12 of the 15 leading causes of death (Kochanek, Murphy, Anderson, & Scott, 2004). Heart disease is

the number 1 killer of both women and men in the US, but 3 out of 4 persons under 65 who die from heart attacks are men (American Heart Association, 1994). For cancer, men have a 1 in 2 lifetime risk of developing cancer compared to women's 1 in 3 chance (American Cancer Society, 1997).

Although a variety of factors influence health and longevity (e.g., biology and access to health care), many health scientists believe that modifiable health behaviors are the most important of these factors. Defined as actions that influence health outcomes (Stimson et al., 2003), health behaviors can include tobacco and alcohol use, diet, exercise, use of social support, safety practices, and efforts to prevent disease (e.g., annual medical check-ups). Recent

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research estimates that 50% of morbidity and mortality is due to such modifiable health behaviors (Mokdad, Marks, Stroup, & Gerberding, 2004).

Socio-demographic variables are often used to predict the frequency of health behaviors. Research finds that having more education, being married, and having more income are usually associated with health promotion behaviors (Calnan & Rutter, 1986; Delva, O'Malley, & Johnston, 2006; Joung, Stronks, van de Mheen, & Mackenbach, 1995; Kaplan, Newsom, McFarland, & Lu, 2001). Research also reports that sexual orientation and race are related to health behaviors with sexual minorities and racial minorities tending to engage in more health risk behaviors compared to heterosexuals and Whites (Dean et al., 2000; Delva et al., 2006).

Gender differences, however, are the most consistent finding in the research literature examining socio-demographics and health behavior. Hundreds of empirical studies consistently show that men are more likely to engage in almost every health risk behavior (e.g., alcohol use, tobacco use, not seeking medical care) increasing their risk of disease, injury, and death (see Courtenay, 2000, for a review). These facts suggest that 1 explanation for men's earlier mortality and higher rates of illness and injury is that men have less healthy lifestyles (World Health Organization, 2000). Thus, a straightforward means to improve men's health would be to reduce their health risks and increase health-promoting behaviors. To do so, a logical first step would be to determine why men engage in health risk and health-promoting behaviors.

One answer comes from those who suggest that gender role socialization encourages men to put their health at risk (Courtenay, 2000; Harrison, Chin, & Ficarroto, 1992). For example, the man who constructs masculinity as being a risk-taker may engage in high-risk behaviors such as smoking, excessive drinking, or refusing to wear a seatbelt. The man who constructs masculinity as putting work ahead of all other responsibilities may not make time for self-care. Similarly, the man who constructs masculinity as being self-reliant may never seek help from health care professionals. In essence, "when a man brags, 'I haven't been to a doctor in years', he is simultaneously describing a health practice and situating himself in a masculine arena" (Courtenay, 2001, p. 1389).

Recent research suggests that men who embrace these traditional constructions of masculinity are

more likely to engage in risky health practices. For example, traditional masculinity is associated with risky behaviors including greater substance abuse (Blazina & Watkins, 1996), coronary prone behavior (Eisler, 1995), violence and aggression (Mahalik, Lagan, & Morrison, 2006), less willingness to consult medical and mental health care providers (Addis & Mahalik, 2003), less utilization of preventive health care (Mahalik et al., 2006), and risky sexual and driving behaviors (Mahalik et al., 2006; Pleck, Sonenstein, & Ku, 1994).

It is also important to understand that men's health behaviors are embedded in, and likely influenced by the social context in which they live. From a social psychological framework, perceptions of normative group behaviors, also called descriptive norms, function to guide behavior by providing information about "normal" behavior in social environments and constrain behavior by indicating what behaviors are deviant or off-limits (Cialdini & Trost, 1999). According to Cialdini (1993), people are influenced by their observations of others because the "social proof" these descriptive norms provide saves time and cognitive effort while giving guidance about behavior that is likely to be effective. Applied to men's health behaviors, perceptions of others' health practices may provide information about how individual men should act—or not act—in terms of the health behaviors they adopt.

A growing body of evidence suggests that perceptions of social norms influence health behaviors. Although most research has been conducted on college student alcohol use (see Perkins, 2003, for an overview), recent research also documents the influence of perceived norms on adolescent smoking (Weiss & Garbanati, 2006), drinking and driving (Linkenbach & Perkins, 2006), gay and bisexual men's condom use (Peterson & Bakeman, 2006), and men's aggression in relationships (Werner & Nixon, 2005).

A key to the social norms approach is identifying salient groups that provide normative information for individuals (Berkowitz, 2003; Borsari & Carey, 2003; Perkins, 2003). Since groups that are similar to an individual are viewed as most influential (Hornstein, Fisch, & Holmes, 1968), perceptions of normative health behaviors in other men may exert a particularly powerful influence on the health behaviors that individual men adopt. Supportive of this conclusion are findings that same-sex drinking norms better account for the frequency

of alcohol use of individual men than opposite-sex drinking norms (Korcuska & Thombs, 2003).

The link between normative behavior and one's own behavior is illustrated when a man perceives that his male friends are trying to quit smoking and, believing this to be normative behavior, attempts to do the same. A man may form his perception of what is normative health care practice based on his recollection that his father never went to the doctor. This perception of normative self-care for male family members, in turn, is likely to contribute to his reluctance to seek medical care. By contrast, if he observes men in his family prioritizing health through exercise, a healthy diet, and not drinking or smoking, he should be more likely to adopt these behaviors himself.

A more distal group influence may be men's perceptions of the health behaviors of typical men in their country. Men may observe an action-hero who does not get medical attention after a bloody fight, or men in burger commercials eating "man-sized" triple-patty cheeseburgers and conclude that these are normative health behaviors for men in his country. If perceived as normative for males in one's country, men should be more likely to adopt those health behaviors (Perkins, 2003).

Women may also act as a normative reference group for men's health behaviors in 2 different ways. First, according to O'Neil (1981), men's fear or being perceived as feminine leads them to define themselves in opposition to women. If a man constructs his identity in contrast to women, he may do the opposite of what he perceives as normative for this group (e.g., eating foods high in fat when he observes women eating low-fat food, or refusing treatment for an ailment when he observes women attending medical appointments). Alternatively, men may view women as a salient reference group because they also provide important information about health behavior. Supportive of this idea is research suggesting that perceptions of men's and women's attitudes toward consensual sex and both men's and women's willingness to act against sexual violence predicted individual men's own behaviors (Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003).

The purpose of this study was to examine the unique contribution that masculinity and men's perceptions of normative male and female health behaviors make in predicting men's own health behaviors beyond that accounted for by socio-demographic variables (e.g., education, income).

We hypothesized that men who endorsed more traditional masculine norms would be more likely to report health risk behaviors and less likely to report health promoting behaviors. We also hypothesized that when men perceive that other men engage in health behaviors—either health risk or health promoting—that they themselves would be more likely to engage in these behaviors. Last, we do not specify a direction given the competing conceptualizations we offered, but we hypothesized that men's perceptions of women's normative health behaviors would be related to men's behaviors.

Method

Participants

One hundred forty men participated in the study. Participants averaged 42.9 years of age ($SD = 13.7$) ranging in age from 18 to 78. Men in the study were predominantly heterosexual, married or in a relationship, Caucasian, university-educated, and employed (see Table 1).

Instrumentation

Health promotion behaviors: To calculate an index of Health Promotion Behaviors, participants were asked to report their frequency of engaging in 8 health behaviors using a Likert-type scale ranging from 1 (*Never*) to 6 (*Always*). The 8 health behaviors were: (a) consuming more than 2 alcoholic drinks per day, (b) using a seatbelt at all times while riding in a car, (c) physical fighting, (d) seeking someone to talk to when dealing with a troubling issue, (e) getting an annual physical exam by a physician, (f) using tobacco, (g) exercising at least 30 min a day 3 times a week, and (h) eating at least 5 servings of fruits and vegetables per day. These health behaviors have been found to have significant gender differences between men and women (Courtenay, 2000). The items were developed by consulting guidelines for healthy living published by the National Institute on Alcohol Abuse and Alcoholism (2004), National Highway Traffic Safety Administration (2005), World Health Organization (2005), National Institute of Mental Health (2005), MedlinePlus Medical Encyclopedia (2005), American Institute for Cancer Research (2005), Centers for Disease Control and Prevention (2005), and US Department of Agriculture (1992), respectively. For example, the item "I consume more than 2

Table 1
Demographic characteristics of participant men

	Mean	SD
	<i>n</i>	%
Age	42.9	13.7
<i>Race</i>		
Caucasian	113	80.7
African-American	8	5.7
Asian or Asian-American	4	2.9
Bi-racial	9	6.4
Other	6	4.3
<i>Sexual orientation</i>		
Heterosexual	102	72.9
Homosexual	32	22.9
Bisexual	6	4.3
<i>Relationship status</i>		
Married	72	51.4
Committed relationship	25	17.9
Single	38	27.1
Divorced	3	2.1
Widowed	1	0.7
Separated	1	0.7
<i>Education</i>		
Not Graduated H.S.	3	2.1
High School Diploma/GED	4	2.9
Associate Degrees	9	6.4
Trade School	5	3.6
College w/ No Degree	24	17.2
Bachelors	39	27.9
Masters	38	27.1
Law	2	1.4
Doctoral	16	11.4
<i>Work status</i>		
Full-time	94	67.1
Part-time	11	7.9
Students	16	11.4
Retired	10	7.1
Unemployed	8	5.7
<i>Income</i>		
Less than \$14,999	15	10.7
\$15,000–\$19,999	6	4.3
\$20,000–\$29,999	13	9.3
\$30,000–\$39,999	17	12.1
\$40,000–\$59,999	21	15.0
\$60,000–\$79,999	15	10.7
\$80,000–\$99,999	15	10.7
\$100,000–\$124,999	17	12.1
\$125,000–\$149,999	9	6.4
\$150,000–\$199,999	11	7.9
Over \$200,000	1	.7

alcoholic drinks a day” was developed from guidelines for healthy living recommended for alcohol consumption by the [National Institute on Alcohol](#)

[Abuse and Alcoholism \(2004\)](#). The Health Promotion Behaviors score was calculated by reverse scoring the alcohol, fighting, and tobacco items and summing the 8 individual items. The possible range of scores was from 8–48 with higher scores indicating more health promoting behaviors.

Masculinity: The Conformity to Masculinity Norms Inventory (CMNI; Mahalik et al., 2003) is a 94-item questionnaire that assesses conformity to an array of dominant cultural norms of masculinity in the United States. Respondents answer items on a 4-point Likert scale from *Strongly Disagree* (0) to *Strongly Agree* (3). Scores on the Masculinity Inventory range from 0 to 282 with higher scores depicting greater conformity to norms of masculinity. Mahalik et al. (2003) report that the Inventory yields 11-factor validated masculinity norms (Winning, Emotional Control, Risk-Taking, Violence, Dominance, Playboy, Self-Reliance, Primacy of Work, Power Over Women, Disdain for Homosexuals, and Pursuit of Status) and a Total, composite score. Estimates of internal consistency for the Inventory range from .75 to .91 for the 11 Masculinity Norms with an α of .94 for the Inventory Total score (Mahalik et al., 2003). Test–retest reliability over a 2–3 week period ranged from .75 to .95 for the eleven Masculinity Norms with a .96 test–retest coefficient for the Inventory Total score (Mahalik et al., 2003). In the present study, we employed an 11-item, abbreviated version of the Inventory using the highest loading item on each of the 11 factors identified in the original Inventory validation study (Mahalik et al., 2003). Possible scores range from 0 to 33. Test–retest reliability over a 2–3 week period for the 11-item scale is strong ($r = .88$). The Spearman–Brown estimate for the 11-item scale estimating the original 94 item length was $r_{SB} = .83$, and the 11-item scale correlated strongly with the 94-item version of the Inventory ($r = .86$). Given that the items represent different factors in the original 94-item version, theta (θ) was calculated as a special case of α that compensates for multidimensionality (Ferketich, 1990). In this study θ was .64.

Perceptions of normative of health behaviors: Participants’ perceptions of the normativeness of the aforementioned 8 health behaviors for men and women were assessed through 48 statements (e.g., “Most of my male friends eat five or more servings of fruits or vegetables per day”). They rated the normativeness of health behaviors in 6

reference groups: (a) male friends, (b) male relatives (e.g., cousins, brothers, father), (c) typical men in their country, (d) female friends, (e) female relatives (e.g., cousins, sisters, mother), and (f) typical women in their country. Each statement was rated on a 6-point scale (1 = *Strongly Disagree* to 6 = *Strongly Agree*). To obtain an index where higher scores reflected perceptions of health promoting behavior, 18 of the items that assessed perceptions of health-risk behaviors (e.g., “Most of my female relatives use tobacco”) were reverse scored. This allowed us to calculate a Men’s Normative Health-Promoting Behaviors Total score by summing the 24 items assessing perceptions of normative health behaviors for men ($\alpha = .82$, range of 24–144); and a Women’s Normative Health-Promoting Behaviors Total score summing the 24 items assessing participants’ perceptions of normative health behaviors for women ($\alpha = .76$, range of 24–144).

Procedure

Participants were recruited through contacting 40 un-moderated and moderated listservs of potential interest to men (e.g., engineering, welding, recreational sports, woodworking, automobiles, and men’s groups such as bible study, men against violence, Black men’s groups, gay men’s groups). Participants were not recruited from sites discussing sexual content (e.g., pornography). For un-moderated listservs a description of the study, request for participants, and URL supported by Psychdata.com was posted. For moderated sites, a description of the investigation with the study’s URL was sent to the moderators asking for permission to post the description on their listserv. Upon gaining permission from the moderator the investigators posted the description, the request to participants, and the URL connecting interested men to the on-line survey. Two of the moderators replied that they would not post the request. Men from 27 listservs contributed data to the final sample. The largest proportion of participants came from 10 groups: Men against violence ($n = 14$, 10%), gay men’s spirituality ($n = 14$, 10%), taxidermy ($n = 11$, 8%), woodworking ($n = 9$, 6%), Soc.men ($n = 7$, 5%), a dance group ($n = 6$, 4%), men’s health issues ($n = 5$, 3.5%), men’s resource group ($n = 5$, 3.5%), weightlifting ($n = 5$, 3.5%), and fly-fishing ($n = 5$, 3.5%). Each of the other 17 groups contributed 4 or fewer responses to the sample.

Statistical analysis

Hierarchical multiple regression was used to test our hypotheses that masculinity scores and perceptions of the normativeness of men’s and women’s health behaviors would account for significant variance in participants’ health behaviors beyond that accounted for by socio-demographic variables. For the main analysis, the Total Score of Men’s Health Behaviors was the criterion variable. After transforming race (1 = non-White, 2 = White), sexual orientation (1 = homosexual or bi-sexual, 2 = heterosexual), and marital status (1 = single, divorced, widowed, separated, 2 = married or cohabitating in committed relationship) into dichotomous variables, participants’ age, race, sexual orientation, marital status, annual income, and educational level were entered in the first step of the regression analysis. Participants’ scores on the Conformity to Masculinity Norms Inventory were entered in the second step, and the Total Score of Perceptions of Men’s Normative Health Behaviors and the Total Score of Perceptions of Women’s Normative Health Behaviors were entered in the final step (see Table 2 for means, standard deviations, and intercorrelations of predictor and criterion variables).

Results

Results indicated that the socio-demographic variables entered in the first step of the hierarchical regression were significant predictors of men’s Health Promotion Behavior scores, $F(6, 133) = 3.20$, $p < .01$, $R^2 = .13$ (See Table 3). Specifically, Sexual Orientation ($\beta = -.24$, $p < .05$), Annual Combined Household Income ($\beta = .16$, $p < .05$), and Highest Educational Level ($\beta = .21$, $p < .05$) were significant predictors of Health Promotion Behavior scores. In the 1st step of the regression analysis, homosexual and bi-sexual men, and men with higher household incomes and more education, reported greater frequency of health-promoting behaviors.

When Masculinity scores were added in the second step of the hierarchical regression, none of the socio-demographic variables remained significant. However, Masculinity contributed significant unique variance in predicting men’s Health Promotion Behavior scores in the second step, $F(1, 132) = 19.62$, $p < .001$, $\Delta R^2 = .11$, $R^2 = .24$. Results indicated that men scoring higher on

Table 2

Means, standard deviations, and intercorrelation of health promoting behaviors, socio-demographics, masculinity and perceptions of normative health behaviors for men and women

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Health-promoting behaviors	36.55	4.81									
2. Age	42.86	13.65	.09								
3. Race	1.81	.39	.03	.12							
4. SexOrient	1.73	.45	-.20*	-.07	.31**						
5. RelStatus	1.69	.46	.01	.36**	.07	.36**					
6. Income	5.51	2.69	.17*	.39**	.13	.11	.36**				
7. Education	8.79	2.08	.26**	.17*	.14	-.07	.05	.20*			
8. CMNI	12.92	3.65	-.43**	-.05	.02	.26**	.12	-.05	-.29**		
9. Perceptions of men's normative health behaviors	89.18	13.19	.45**	.17**	.02	-.14	.08	.17*	.30**	-.25**	
10. Perceptions of women's normative health behaviors	106.98	10.98	.16	-.05	-.01	-.03	-.03	.03	.05	-.14	.35**

Note: N = 140. Race: Racial group membership (1 = Non-White, 2 = White), SexOrient: Sexual orientation coded (1 = homosexual or bi-sexual, 2 = heterosexual), RelStatus: Relationship status coded (1 = single, divorced, widowed, separated, 2 = married or cohabitating in committed relationship). CMNI = Conformity to Masculinity Inventory.

Table 3

Hierarchical regression of socio-demographic, masculinity, and perceptions of men's and women's normative health behaviors predicting men's health promotion behaviors

Step and variable	Step 1			Step 2			Step 3		
	B	SE	β	B	SE	β	B	SE	β
<i>Socio-demographics</i>									
Age	-.02	.03	-.05	-.02	.03	-.05	-.02	.03	-.06
Race	.74	1.07	.06	.72	1.00	.06	.66	.95	.05
SexOrient	-2.54	1.03	-.24*	-1.68	.99	-.16	-1.20	.94	-.11
RelStatus	.39	1.02	.04	.67	.96	.06	.35	.91	.03
Income	.28	.17	.16*	.25	.16	.14	.20	.15	.11
Education	.48	.20	.21*	.25	.19	.11	.09	.18	.04
<i>Masculinity</i>									
CMNI				-.48	.11	-.36***	-.41	.10	-.31***
<i>Normative health behaviors</i>									
Perceptions of Men							.12	.03	.34***
Perceptions of Women							-.01	.03	-.01
F		3.20**			5.92***			7.24***	
Multiple R		.36			.49			.58	
Multiple Adj R ²		.09			.20			.29	
ΔR^2		.13**			.11***			.10***	

Note: N = 140. * = p < .05. ** = p < .01. *** = p < .001. Step 1: df = (6, 133); Step 2: df = (7, 132); Step 3: df (9, 130). Race: racial group membership (1 = Non-White, 2 = White), SexOrient: Sexual orientation coded (1 = homosexual or bi-sexual, 2 = heterosexual), RelStatus: Relationship status coded (1 = single, divorced, widowed, separated, 2 = married or cohabitating in committed relationship). CMNI = Conformity to Masculinity Inventory.

Masculinity reported lower frequencies of health-promoting behaviors ($\beta = -.36, p < .001$).

In the 3rd step of the analysis, Masculinity scores remained significant ($\beta = -.31, p < .001$), and Perceptions of Men's Normative Health Behaviors contributed unique variance related to men's Health

Promotion Behavior scores ($\beta = .34, p < .001$), $F(2, 130) = 9.24, p < .001, \Delta R^2 = .10, R^2 = .33$. Perceptions of Women's Normative Health Behaviors did not explain further variance. Thus, the findings from the full hierarchical regression indicated that men reported greater frequency of health-promoting

behaviors when they conformed less to traditional masculine norms and perceived that other men engaged in health-promoting behaviors. Multicollinearity was not indicated in the regression analyses as no individual variable's condition index was $> .30$ for a given dimension coupled with 2 or more variance proportions $> .50$ (Belsley, Kuh, & Welsch, 1980; Tabachnick & Fidell, 2001).

Discussion

The results of the study supported our hypotheses that masculinity and perceptions of other men's health behaviors would predict participants' own health behaviors. However, there was no support for our hypothesis that perceptions of the normativeness of women's health practices would predict participants' behaviors. We believe these results may improve our understanding of why men have poorer health practices than women (see Courtenay, 2000). As men adopt traditional masculine ideals they may be adopting health practices reflecting those ideals that put their health at risk. Also, perceptions of other men's health behaviors may be communicating "social proof" about health behaviors potentially guiding their own health behaviors.

These results are consistent with past research reporting that masculinity is a correlate of health behaviors (Addis & Mahalik, 2003; Blazina & Watkins, 1996; Mahalik et al., 2006; Pleck et al., 1994), that traditional masculine socialization may encourage men to put their health at risk (Courtenay, 2000; Harrison et al., 1992), and that men's health practices can function to situate them in the masculine arena (Courtenay, 2001). Our findings also confirm previous research that social norms describing others' health behaviors are a significant correlate of one's own health behaviors (Berkowitz, 2003; Borsari & Carey, 2003; Gunther et al., 2006; Perkins, 2002, 2003; Perkins, Haines, & Rice, 2005; Perkins & Wechsler, 1996; Prentice & Miller, 1993; Weiss & Garbanati, 2006), as well as findings that perceptions of same-sex norms best account for individual health behavior (Korcuska & Thombs, 2003). As such, our findings extend both the masculinity and social norms literatures addressing health behaviors by replicating previous findings found in college samples in our sample of older men. Our study also extends these literatures by examining the unique contribution that both masculinity and social norms make in explaining men's health behaviors.

Health promotion efforts could be based on these results. To address constructions of masculinity, cognitive interventions could aim at modifying men's masculine-related cognitive schemas (see Mahalik, 1999) that interfered with healthy behaviors. For a man who constructs a healthy diet to mean "eating like a girl," cognitive techniques such as history review (e.g., his father's unhealthy eating led to weight gain, back problems, and heart disease) and exploring the logic of behavior change (e.g., "eating better will lead to doing better at work and having more energy for my family") might be useful in modifying his personal constructs to promote a healthier diet (e.g., "I don't want to have the health problems my father had, I want to be energetic at work and home, and eating a healthy diet can help with these concerns"). Such interventions would be a logical extension of the finding that men's constructions of masculinity are significant predictors of health behaviors.

A significant strength of the social norms approach is its utility in prevention. Research demonstrates that interventions correcting pluralistic ignorance (i.e., misperceived social norms that substance abuse in reference groups is greater than it is) are effective in reducing youth substance abuse (Perkins, 2003). Given our findings that men's perceptions of men's normative health behaviors relates to their own adoption of health behaviors, social norms interventions may also be effective in reducing health-risk behaviors and increasing health promotion behaviors. Some evidence that men in our sample may experience pluralistic ignorance in relation to other men's actual normative health behavior is that men in our sample tended to view other men as engaging in more health-risk behaviors than themselves. Prevention efforts such as social norms marketing campaigns demonstrated as successful in colleges and high-schools for reducing alcohol abuse and tobacco use might be applied to men's health-risk behaviors identified in this study (Berkowitz, 2003; Perkins, 2003).

We note several limitations to the current study. First, given the correlational nature of the study, we cannot make inferences about causal relationships between the predictors and men's health behaviors. Experimental and longitudinal data are required to determine the causal determinants of men's health behaviors. Also, the sample was recruited online and respondents may have differed from non-respondents (e.g., having resources that allowed access to the Internet). Third, the majority of

respondents were Caucasian and heterosexual raising concerns about whether these same relationships would be replicated with men from other racial backgrounds and sexual orientations. The variables measured in the study were also obtained through self-reports and online data collection. Although online surveys may raise concern about generalizability, a recent empirical analysis of online research concluded that “the data provided by Internet methods are of at least as good quality as those provided through traditional paper and pencil measures” (Gosling, Vazire, Srivastava, & John, 2004, p. 102).

Future research should address these limitations by examining predictors of men’s health behaviors in different populations of men, as well as extending research to examine women’s health behaviors. Although men are more likely to engage in most health-risk behaviors (see Courtenay, 2000), women’s health behaviors also affect their mortality and morbidity and it is critical to identify what unique factors may predict their health behaviors. In addition, we believe it important to develop and evaluate preventive interventions to increase health-promoting behaviors and reduce health-risk behaviors in boys and men given their poorer mortality and morbidity statistics (Arias et al., 2003; Kochanek et al., 2004).

In conclusion, results from this study suggest that constructions of masculinity and men’s perceptions of other men’s health behaviors contribute unique variance in explaining men’s health behaviors. These findings support previous research examining masculinity and social norms in relation to health behaviors but extend those findings to additional health behaviors in a sample of adult men. The findings support both gender role socialization and social norms models, and suggest potential preventive and remedial interventions to improve men’s health behaviors. Although future research needs to address the limitations of this study, we believe the findings help to explain why men have poorer health practices and higher rates of mortality and morbidity.

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