



The influence of close others' exercise habits and perceived social support on exercise

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ABSTRACT

Objectives: Exercise rates are low, but perceived support from close others can influence exercise habits. The purpose of the study was to examine the influence of perceived support for exercise as well as close others' exercise habits on own exercise, and to examine the differential effects of friend's exercise and romantic partner's exercise.

Design: Undergraduates ($N=220$) at a northeastern university completed questionnaires on their own exercise habits, their romantic partner's and best friend's exercise habits, and perceived support for exercise.

Results: Friend's exercise was associated with own exercise, but only when perceived support was high. Being male, partner's exercise, and friend's exercise all independently predicted own exercise.

Conclusions: Exercise habits of close others are associated with one's own exercise habits, though this relationship may vary depending on perceived support. Attention should be paid to women's exercise habits, since they are less likely to exercise than men.

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Exercise increases longevity, prevents obesity, and reduces risk of some chronic illnesses such as coronary heart disease and hypertension (U.S. DHHS, 1996). Exercise also benefits mental health, with positive effects on depressive symptoms (Ross & Hayes, 1998) and anxiety (Sallis & Owen, 1999). Exercise is also related to high self-esteem and overall quality of life (McAuley & Rudolph, 1995). Despite the many benefits of exercise, rates of activity among people who live in the United States are extraordinarily low, with over half not engaging in the recommended amount of physical activity (CDC, 2007). These low rates are troubling given the association between exercise and decreased risk of chronic illness.

Support from close others can influence exercise (Courneya, Plotnikoff, Hotz, & Birkett, 2000). Behavior can be encouraged by close others, and people may be more likely to engage in behaviors when their close others do so. Exercise may be modeled by close others, and these close others may also provide praise during exercise, as well as opportunities to exercise (Sallis & Hovell, 1990). Therefore, support to exercise can occur in a variety of forms. For example, positive feedback from close others, as well as close others being physically active, is related to greater physical activity

(Booth, Owen, Bauman, Clavisi, & Leslie, 2000). Since women tend to affiliate with their social networks more than men do (Taylor, 2002), it is possible that the impact of social support may be more robust for women. This is illustrated by studies demonstrating the importance of support on women's exercise habits (Castro, Sallis, Hickmann, Lee, & Chen, 1999; Eyler et al., 1999). Other studies have shown that exercise habits of both men and women are impacted by perceived social support (Leslie, Owen, Salmon, Bauman, & Sallis, 1999). The influence of close others' exercise may vary depending on whether the close other is a romantic partner or a friend. While romantic partner's exercise has been shown to be related to one's own exercise (Booth et al., 2000; Wallace, Raglin, & Jastremski, 1995), less research has been done on the impact of friend's exercise. Some studies have examined differences in support to exercise from family and friends (Eyler et al., 1999), and a measure has also been developed that assesses support from various specific close others (Sallis, Grossman, Pinski, Patterson, & Nader, 1987), but few studies have examined differences in the impact of the exercise habits of close others. When close others engage in a behavior, they model the behavior. On the other hand, people may seek out close others who engage in the same behaviors. Much of the research on social support and behavior fails to examine whether the relationship between close others' behavior and one's own behavior will vary depending on the identity of the close other.

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The purpose of the study was to examine the influence of perceived support for exercise as well as close others' perceived exercise habits on one's own exercise. Differences in the influence of romantic partner's as opposed to best friend's exercise were examined, and the role of gender was also considered. We hypothesized that perceived support for exercise and perceived partner's and friend's exercise would all predict own exercise. We also predicted that levels of own exercise would be greatest when both support for exercise and close others' exercise was high, and this hypothesis was examined by testing interactive effects. We believed that friends' exercise habits would be just as important as that of a romantic partner and that hypothesized effects would be stronger for women than for men.

Method

Participants

Undergraduates at a public northeastern university who were required to fulfill research participation requirements participated in the study. Since a focus of the study was to compare perceived exercise habits of friends and romantic partners, only participants in a romantic relationship were included ($N = 220$). Participants reported on the perceived exercise habits of their best friend and their romantic partner. Participants' age ranged from 18 to 26 ($M = 18.9$), and gender was 56.4% female and 43.6% male. The racial self-identification of participants was as follows: 40.9% Asian American/Pacific Islander, 31.4% European American, 14.5% other/mixed, 7.3% Latino/Hispanic, 5.5% African-American/Black, and .5% American Indian.

Procedure

Participants filled out computer questionnaires as part of a larger departmental mass testing session and received credit toward a research participation requirement.

Measures

Own exercise, as well as perceived partner's and friend's exercise were assessed using the Godin Leisure Time Exercise Questionnaire (Godin & Shephard, 1985). This psychometrically robust four-item questionnaire assessed frequency of mild, moderate, and strenuous exercise (defined for respondents in the instructions). Participants filled out the questionnaire three times: once for own exercise, once for romantic partners' exercise, and again for best friends' exercise. A composite exercise score was created for own, partner's, and friend's exercise by weighting mild, moderate, and vigorous exercise accordingly.

Perceived support for exercise was measured by one item: "How much support do you receive for participating in regular physical activity from the people closest to you?" The item was scored on a five point scale, with "1" being "None at all" and "5" being "Very much."

We also measured Body Mass Index (BMI), which was calculated from participants' self-reported height and weight. The following standard formula was used: $(wt_{(lb)})/ht^2_{(in)} \times 703$.

Data analysis

Data was inspected for outliers, non-normality, and missing data. Descriptive statistics and correlations were calculated, and independent samples t -tests were conducted to examine gender differences. Hierarchical regression analysis was conducted for own exercise. BMI, gender, perceived support for exercise, and perceived friend's and partner's exercise were entered on Step One. Perceived

support and friend's and partner's exercise were centered at the grand mean. All six two-way interactions were entered on Step Two: gender \times support, gender \times friend's exercise, gender \times partner's exercise, support \times friend's exercise, support \times partner's exercise, and friend's exercise \times partner's exercise. All four three-way interactions were entered on Step Three. The four-way interaction was entered on Step Four. Therefore, we tested all possible interactions among study variables in order to detect any moderating effects. Statistically significant interactions are described first, followed by significant main effects. We report results from the full model only (i.e. all main effects and interactions entered), as these provide the strongest test of study hypotheses. Significant interactions were inspected using simple slopes analyses.

Results

Descriptive statistics and correlations between study variables for the sample are reported in Table 1. We tested for multicollinearity by examining variance inflation factors, none of which exceeded 4.0, indicating no problems with multicollinearity (Kleinbaum, Kupper, Muller, & Nizam, 1998). Independent samples t -tests examining gender differences for support for exercise and own, partner's, and friend's exercise were not statistically significant.

Results of the hierarchical regression are displayed in Table 2. We found a significant gender \times support \times friend's exercise interaction, $t(203) = 3.14$, $p < .01$, $r = .22$. Simple slopes analysis revealed that when support to exercise was high (at least one standard deviation above the mean), friend's exercise was associated with own exercise for both men, simple slope = .42, $t(203) = 2.40$, $p < .05$, and women, simple slope = .71, $t(203) = 2.41$, $p < .05$. Friend's exercise was not significantly associated with own exercise when perceived support was low (at least one standard deviation below the mean) for both men and women.

A significant support \times friend's exercise interaction was found, $t(203) = -2.61$, $p < .05$, $r = -.18$, but the simple slopes analysis indicated no significant trends. The interaction of friend's exercise and partner's exercise marginally predicted own exercise, $t(203) = -1.96$, $p = .05$, $r = -.14$. When partner's exercise was low (at least one standard deviation below the mean), friend's exercise was associated with own exercise, simple slope = .30, $t(203) = 3.32$, $p < .01$. Friend's exercise was not associated with own exercise when partner exercise was at average or above average levels.

Analyses of main effects show that being male, $t(203) = -2.63$, $p < .01$, friend's exercise, $t(203) = 3.36$, $p < .01$, and partner's exercise, $t(203) = 3.77$, $p < .001$, were independently associated with own exercise.

Discussion

With exercise rates being low, it is important to examine predictors of exercise, such as perceived social support. Findings

Table 1

Correlations, means, and standard deviations of study variables for entire sample ($N = 220$).

Variables	BMI	Support	Own exercise	Partner exercise	Friend exercise
BMI	–	.04	.12	-.02	.18**
Support for exercise		–	.18*	.08	.15*
Own exercise			–	.45***	.47***
Partner exercise				–	.40***
Friend exercise					–
<i>M</i>	22.8	2.3	32.7	33.9	30.6
<i>SD</i>	4.2	1.2	28.4	32.0	31.1

* $p < .05$, ** $p < .01$, *** $p < .001$. Note: range of values: BMI (15–39), support (0–4), own exercise (0–133), partner exercise (0–136), friend exercise (0–136).

Table 2
Hierarchical regression for variables predicting own exercise ($N = 220$).

	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE</i>	β									
Step One												
BMI	.35	.40	.05	.36	.41	.05	.51	.40	.07	.47	.40	.07
Gen	−5.57	3.33	−.10	−6.10	3.46	−.11	−9.50	3.57	−.17**	−9.39	3.58	−.17**
Supp	2.61	1.35	.11	3.07	1.98	.13	3.26	2.05	.14	2.73	2.15	.12
F ex	.27	.06	.30***	.27	.09	.29**	.31	.09	.33**	.30	.09	.33**
P ex	.30	.06	.33***	.33	.10	.37**	.38	.10	.43***	.38	.10	.43***
Step Two												
Gen × Supp				−.65	2.79	−.02	−1.19	2.86	−.04	−.66	2.93	−.02
Gen × F ex				.00	.12	.00	−.04	.12	−.03	−.02	.13	−.01
Gen × P ex				−.04	.13	−.04	−.15	.13	−.13	−.13	.13	−.11
Supp × F ex				.01	.05	.01	−.18	.07	−.26*	−.19	.07	−.28*
Supp × P ex				.03	.05	.04	.10	.07	.14	.09	.07	.13
F ex × P ex				.00	.00	−.03	.00	.00	−.17	.00	.00	−.18
Step Three												
Gen × Supp × F ex							.31	.10	.33**	.31	.10	.33**
Gen × Supp × P ex							−.10	.10	−.10	−.08	.10	−.09
Gen × F ex × P ex							.00	.00	.14	.01	.00	.16
Supp × F ex × P ex							.00	.00	.03	.00	.00	.09
Step Four												
Gen × Supp × F ex × P ex										.00	.00	−.09
R^2	.32			.33			.38			.38		
F for change in R^2	20.41***			.11			4.40**			.67		

* $p < .05$, ** $p < .01$, *** $p < .001$. Note: Gen = gender; Supp = support; F ex = friend's exercise; P ex = partner's exercise.

demonstrated that perceived exercise habits of both best friends and romantic partners are independently associated with one's own exercise habits, when controlling for body weight. There are a few possible explanations for this association. First, friends and romantic partners may model exercise behavior. That is, people may exercise based on what they see their close others doing. Actions taken by close others that one admires suggest that the behavior being engaged in is desirable and normal (Christakis & Fowler, 2007). Engaging in the same behaviors as a close other provides opportunities to spend time together and also provides a conversation topic. Finally, it is also likely that we seek out friends and romantic partners who are similar to us or who engage in similar health behaviors such as eating and physical activity habits (Bahr, Browning, Wyatt, & Hill, 2009).

The perceived exercise habits of friends were associated with own exercise, but only when perceived support for exercise was at least above average. Although this trend was found for both men and women, the association was stronger for women, who we found reported less exercise than men. Men are more likely than women to engage in recommended levels of physical activity (U.S. DHHS, 1996). Women tend to perceive more barriers to exercise than men do (Lee, 1993), and some women feel discouraged from exercising by their close others, or feel self-conscious in an exercise environment (King et al., 2000). Men, on the other hand, may be expected to exercise or do not experience similar levels of self-consciousness, as men are highly visible in professional sports (Hargreaves, 1994). Therefore, support from close others may be important for women since they are less likely to initiate physical activity.

This study had several strengths. First, most studies of social support and exercise focus on romantic partners (Booth et al., 2000; Pettee et al., 2006). Few studies examine the impact of a best friend's exercise habits. We compared the impact of a romantic partner's exercise habits, as well as that of a close friend. We found that both factors impact one's own exercise habits, but future research should continue to examine how the two types of close others influence individuals in different ways. We also considered

social support in two different ways. Not only did we ask participants to indicate the degree to which they perceive support to exercise, we also considered the perceived amount of exercise close others engage in as a form of support. Finally, the statistical analyses that we conducted were comprehensive in that they accounted for both main effects and interactions between study variables. In other words, this test of study hypotheses included an examination of multiple factors associated with physical activity in one model, in order to assess independent effects of these factors, as well as interactions.

The study is not without its limitations. First, all questionnaires were self-report in which participants indicated their perceptions of their close others' exercise. Therefore, it is possible that they may have over- or under-estimated their close others' exercise. Also, our measure of support consisted of one item. There are measures that are designed to assess support for exercise (Sallis et al., 1987), and findings should be replicated using these measures. Third, we included only participants in a romantic relationship. It is possible that friend's exercise will have a different impact for someone who is not in a romantic relationship. Finally, our study lacked a theoretical framework, such as that provided by the theory of planned behavior (Ajzen & Madden, 1986). However, testing the validity of a health behavior theory was beyond the scope of this study, as the purpose of the study was to examine associations of close others' exercise, perceived social support, and gender with one's own exercise habits.

This study demonstrated the impact of close others on exercise. We showed that the perceived exercise of close others is associated with one's exercise habits, with friend's exercise only being associated with own exercise when there is perceived support to do so. Future research should explore why perceived support to exercise may moderate the influence of the exercise habits of friends but not romantic partners. Future studies should also investigate how other factors such as self-efficacy and attitudes toward exercise interact with perceived support and perceived exercise by close others to impact own exercise. Social support is important for engaging in health behaviors. By further exploring the different ways in which

support from close others can influence healthy behaviors, ways that social support can be incorporated into exercise interventions can be investigated.

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