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The Impact of Positive and Negative Fitness Exemplars on Motivation

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In 3 studies, we examined whether exposure to exemplars of either excellent or poor physical fitness would influence participants' motivation to improve their eating and exercise habits. In Study 1, we exposed participants to positive and negative physical fitness exemplars and then assessed their eating and exercise behavioral intentions. In Study 2, participants indicated the degree to which they would be motivated by exemplars highlighting either (a) positive or negative physical fitness levels or (b) the body shape consequences of excellent or poor fitness levels. In Study 3, we assessed the effect of positive and negative fitness exemplars when body shape consequences were salient. Across studies, participants were motivated by positive physical fitness exemplars regardless of whether body shape outcomes were highlighted. In contrast, participants were motivated by negative physical fitness exemplars only when undesirable body shape consequences were salient.

A variety of health-related campaigns use exemplars as a means of encouraging people to change their behaviors. One recent health promotion campaign aimed at teens, for example (Toronto Heart Health Partnership, 2002), used transit posters to profile the case of 17-year-old Eddy, who "has a passion for burgers, butts and his sofa ... While he has youth and a pumping heart on his side for now, he's heading down a path where he could drop and look like human road kill." Readers are then urged to "get off your butt" and "stop eating trash," presumably so they can avoid becoming like Eddy. Other posters from the same organization have profiled positive examples such as "Jean" who notes that, "quitting smoking gave me energy to burn ... I knew there would be health benefits, but I never expected to feel so much better that I'd be taking up aerobics and kickboxing!" It is assumed that negative exemplars, people who have experienced an undesirable outcome, can motivate others to avoid a similarly unpleasant fate; positive exemplars, people who have experienced a desirable outcome, can inspire others to pursue a similarly positive fate. It is not clear, however, whether people are more likely to be receptive to positive or negative health exemplars. To encourage an audience to adopt a healthier lifestyle, should one provide an example of a person who is suffering from ill-health after years of eating fast food and watching TV or

an example of a person who is enjoying the health benefits of an excellent diet and regular exercise?

A large body of research has examined social comparisons, comparisons to better-off and worse-off others, in health domains; however, these studies have focused largely on how people use comparisons to cope with illness (for a review, see Tennen, McKee, & Affleck, 2000). One important set of studies found that breast cancer patients tended to use upward comparisons to women recovering from the disease as a source of inspiration, providing hope for the future; the patients used downward comparisons to women who were coping less well psychologically as a source of reassurance, reminding them that they were superior to others on this dimension (Wood, Taylor, & Lichtman, 1985). Comparisons provide a means of coping with health issues as diverse as chronic pain (Jensen & Karoly, 1992), infertility (Stanton, 1992), rheumatoid arthritis (Blalock, Afifi, DeVellis, Holt, & DeVellis, 1990; DeVellis et al, 1991; Giorgino et al., 1994), multiple sclerosis (Hemphill & Lehman, 1991), and cancer (Buunk, Collins, Taylor, Van Yperen, & Dakof, 1990; Llewellyn-Thomas, Thiel, & McGreal, 1992; Van der Zee, Oldersma, Buunk, & Bos, 1998). However, because these studies typically focused on the self-reported impact of comparisons on such variables as coping and perceptions of physical symptoms, it remains unclear how comparisons might alter people's motivation to change their behaviors.

A handful of studies suggest that social comparisons may be an effective means of bringing about behavior changes.

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For example, one set of studies examining smoker prototypes found that adolescents who quit smoking tended to have more negative images of smokers than did adolescents who did not quit (Gibbons & Gerrard, 1997). In another set of studies, exposure to HIV-positive peers increased adolescents' perceived vulnerability to HIV (Misovich, Fisher, & Fisher, 1997) and their motivation to get tested for HIV (Evers, Bishop, Gerhan, & Weisse, 1997; Fisher & Fisher, 1992; Gump & Kulik, 1995). The peer appeared to activate participants' concerns that they might have contracted the disease in a past sexual encounter, making them aware of their vulnerability to a health threat. These studies did not, however, examine whether the negative exemplars also boosted people's motivation to engage in behaviors (e.g., condom use) aimed at avoiding this threat in the future. Moreover, research to date has not examined the effect of negative exemplars on more general health-related behaviors such as eating a nutritious diet and maintaining an exercise program. These activities are not associated with the alleviation of a single, clear threat, such as HIV. Nevertheless, they are associated with long-term health outcomes in a wide variety of domains (Health Canada, 1999). In addition, research has not yet directly compared the effectiveness of positive and negative exemplars on health-related motivation. It is thus unclear whether people are more likely to be motivated by the example of a fit, healthy individual or an out-of-shape "couch potato."

To date, social comparison research has focused on the impact of positive rather than negative exemplars on motivation. Evidence suggests that, whereas comparisons to worse-off others provide a means of self-enhancement by reminding people of their own superiority, comparisons to better-off others can provide a guide to self-improvement by illustrating the success for which people can strive (Taylor & Lobel, 1989). Positive exemplars highlight achievements that are possible and can therefore motivate others to strive to become more like them (Collins, 1996; Lockwood & Kunda, 1997, 1999; Taylor & Lobel, 1989; Taylor, Wayment & Carillo, 1996; Wood, 1989). Although people tend to be inspired spontaneously by positive exemplars, they are typically less likely to be motivated by negative exemplars in achievement-related domains (Lockwood, 2002). People tend to have positive illusions about their attributes and abilities: They assume that they are superior to others and that they are less likely to experience negative outcomes than their peers are (Taylor & Brown, 1988). Consequently, the unsuccessful other is viewed as an implausible future self and thus has no impact on motivation. In one study, for example, students' motivation was unaffected by the example of a poorly coping recent graduate; only when participants were forced to reflect on obvious parallels between themselves and the poorly coping other did they perceive themselves to be vulnerable to the worse-off other's outcome and so experienced a boost in motivation to work hard (Lockwood, 2002).

Although evidence suggests that people are more likely to be motivated spontaneously by a positive than a negative exemplar, research to date has not directly compared the impact of these two kinds of comparisons on motivation within a single study.

In addition, it is not clear that downward comparisons to negative health exemplars will operate in the same way as downward comparisons to negative achievement exemplars. Although people may not expect to experience future problems in achievement domains, they may believe they are more susceptible to specific negative health outcomes. Certainly, the literature on HIV prevention described previously suggests that exposure to peers with HIV can increase perceived vulnerability to this health threat (Misovich et al., 1997). Because participants in these studies typically had already engaged in unsafe sexual behavior, they may have found it difficult to ignore the possibility that they could be at risk in this domain. When one cannot maintain one's positive illusion of invulnerability, downward comparisons may be especially likely to activate a feared self and so boost intentions to change behavior.

We examined the impact of positive and negative fitness-related exemplars on young adult participants' behavioral intentions. An individual who is reaping the benefits of an excellent diet and regular physical activity may motivate others to adopt healthier behaviors in the hope that they might become more like the positive exemplar in the future. In contrast, an individual who is experiencing the costs of a poor diet and lack of exercise might motivate others to adopt healthier behaviors out of fear that they might become like this negative example in the future. We expected that healthy exemplars would activate stronger intentions to improve behavior than would unhealthy exemplars. Participants would assume that they would be more likely to become like the healthy than the unhealthy exemplar and thus would be more strongly motivated by the positive exemplar. However, we also considered whether it might be possible to boost the impact of the unhealthy exemplar. Although people might not typically be motivated by the example of someone who reports being out of shape, they may be more strongly influenced by such an exemplar when the body shape consequences of the exemplar's poor fitness are salient. Specifically, younger people may find the example of a person who is overweight to be more compelling than the example of a person who is simply out of shape.

Why might the inclusion of weight-related information boost the impact of negative fitness exemplars? Other potential consequences of poor fitness, such as heart disease and diabetes, also pose a serious threat to health and well-being. However, we expected that weight-related consequences would be especially compelling for college-aged participants, who would likely view the distant prospect of a heart attack to be less immediately distressing than the more proximate costs of an undesirable physique, which

they might expect to reduce their attractiveness and consequently their social popularity. Although young adults may not be overly concerned about their level of physical fitness, many are concerned with their weight and body shape (Harrison, 2001). Indeed, body image is one domain in which younger people appear to have weaker positive illusions about themselves (Powell, Matacin, & Stuart, 2001); consequently, they may be especially sensitive to negative exemplars in this domain. Thus, negative fitness exemplars may vary in their motivating effects depending on whether the weight-related outcome of their poor physical condition is made salient. An exemplar perceived to have a poor level of physical fitness may have little impact on people's motivation. In contrast, an exemplar described as being overweight will likely activate young adults' fears that their own body shape is or may become undesirable and should therefore be effective in boosting their intentions to exercise and improve their eating habits.

In sum, both positive and negative exemplars can be motivating if people view them as possible future selves. The extent to which people believe they may become like negative physical fitness exemplars may depend on whether body shape information is included. Specifically, negative fitness exemplars may be motivating only when they highlight negative weight outcomes associated with poor fitness. Young adults will feel more vulnerable to fitness exemplars that tap into their own body image concerns and thus are more likely to be motivated by those that emphasize body shape problems than those that do not. In contrast, positive fitness exemplars may effectively boost motivation regardless of whether they highlight body shape outcomes. Exemplars that highlight either excellent fitness or positive body images associated with fitness will be viewed as possible future selves; such exemplars will motivate people to adopt behaviors that will help them to achieve a similarly positive outcome.

In Study 1, we exposed participants to exemplars who typified outstanding or poor physical fitness and examined participants' motivation to change their own diets and activity levels. We focused on motivation regarding eating and exercise because both are closely tied to a wide variety of health outcomes (Health Canada, 1999). In Study 2, we compared the perceived motivating impact of exemplars of excellent or poor fitness with the impact of exemplars highlighting the body shape consequences of excellent or poor fitness. In Study 3, we examined the impact of the exemplars similar to those used in Study 1, this time including information regarding the body shape consequences of excellent or poor fitness levels. Across studies, we expected that when physical fitness alone was emphasized, participants would be motivated by positive but not by negative exemplars. When weight-related consequences were made salient, we expected that participants would be motivated by both positive and negative exemplars.

STUDY 1: THE IMPACT OF POSITIVE AND NEGATIVE PHYSICAL FITNESS EXEMPLARS ON HEALTH-RELATED MOTIVATION

In Study 1, we examined whether participants would be more motivated by exemplars that highlighted outstanding or poor physical fitness. Participants were exposed to a positive exemplar who described stellar health-related activities or to a negative exemplar who described dismal health-related activities. We predicted that, consistent with findings from the literature on social comparison and achievement exemplars, the upward comparison would boost motivation to a greater degree than would the downward comparison. Moreover, we predicted that this effect would be mediated by participants' beliefs regarding the likelihood that they might become like the exemplar in the future.

Method

Participants. Participants were 110 introductory psychology students who took part in the study for course credit. Four participants were excluded because they disbelieved the cover story. Altogether, 42 females and 64 males were included in the analyses. The average age of participants was 19.0 years. There were no gender effects, therefore gender is not discussed further.

Procedure. Participants were invited to take part in a study on university students' health. They were told that the researchers were interested in understanding health-related outcomes for students, and, because participants were themselves students and might therefore have a unique understanding of the issues facing this group, they would first be asked to provide their impressions regarding the health of another student. Participants then read a bogus self-description that was ostensibly written by a fourth-year student who had taken part in the study the previous year. Targets were matched with participants on gender. In the positive exemplar condition, the student described taking part in a variety of physical activities (e.g., "I work out 5 times a week ... I like to do a wide variety of activities like swimming, biking, running, and playing tennis. I walk or bike whenever I can, even if it takes a little longer"), eating a healthy diet ("I try to eat a balanced meal as often as I can. I usually avoid fast food and go for a sandwich or salad. I try to drink milk, juice, or water"), and finished by noting, "Overall, I am really happy with my level of health and fitness." In the negative exemplar condition, the student described inactivity (e.g., "I never work out. In fact, I haven't been to a gym in a year. I usually take the car or the subway whenever I can ... I even take the elevator when I have to go up just one floor"), poor eating habits (e.g., "When it comes to eating and meals, I just eat whatever I can find ... I eat fast food almost every day. I don't eat as many fruits and vegetables as I should, and I usually go

for cookies and chips”), and finished by noting, “Overall, I am really not happy with my level of health and fitness.”

After reading the exemplar description, participants rated the exemplars on five items that assessed their perceptions of the exemplar’s health (e.g., “How healthy do you think this person is?” “How active do you think this person is?” “How healthy are this person’s eating habits?”). Ratings were made on a 9-point scale ranging from 1 (*not at all*) to 9 (*very*).

Participants then went on to what they believed to be the main part of the study, a questionnaire regarding their own health and activities. Participants were asked to indicate the extent to which they planned to engage in a set of 17 health-related behaviors (e.g., “I plan to avoid eating fast food,” “I plan to exercise,” “I plan to get a locker at an athletic center”). Ratings were made on a 9-point scale ranging from 1 (*not at all true*) to 9 (*very true*).

At the end of the study, participants in the positive and negative exemplar conditions completed a 3-item measure assessing the degree to which they believed they might become like the exemplar in the future (“How likely is it that you could become like the person you read about?” “How likely is it that you could become as (un)healthy as this person?” “How likely is it that you could eventually end up like this person?”). Ratings were made on a 9-point scale ranging from 1 (*not at all likely*) to 9 (*very likely*). Participants also completed a manipulation check item in which they rated their own health relative to that of the exemplar. Ratings were made on a 7-point scale ranging from -3 (*I am doing much worse than this person*) to $+3$ (*I am doing much better than this person*). These items were included after the key dependent measure of motivation so that participants would not be alerted to the true purpose of the study.

A no-target control group completed the motivation measure without first reading about a health exemplar. At the end of the experimental session, all participants were probed for suspicion and debriefed.

Results and Discussion

Exemplar ratings. The exemplar health ratings were combined to form a single index (Cronbach’s $\alpha = .96$). Participants viewed the positive exemplar ($M = 8.18$) to be significantly healthier than the negative exemplar ($M = 2.66$), $F(1, 76) = 1122.02, p < .001$.

Manipulation check. Participants rated their own health more positively than that of the negative exemplar ($M = 1.67$), but less positively than that of the positive exemplar ($M = -1.22$), $F(1, 75) = 144.17, p < .001$. Thus, we were successful in creating a positive exemplar who was viewed as an upward comparison and a negative exemplar who was viewed as a downward comparison.

Health motivation ratings. The motivation items were combined to form a single index (Cronbach’s $\alpha = .82$). A

one-way analysis of variance (ANOVA) revealed a significant effect of exemplar condition, $F(2, 103) = 3.08, p = .05$. A Fisher’s protected least significant difference (LSD) test indicated that participants who read about the very healthy exemplar ($M = 6.32$) were significantly more motivated than were participants who read about the unhealthy exemplar ($M = 5.77; p = .05$) or participants who read about no exemplar ($M = 5.67; p = .03$). As expected, participants who read about a negative exemplar did not differ significantly in motivation from those who read about no exemplar ($p = .74$).

Likelihood of becoming like exemplar. The likelihood items were combined to form a single index (Cronbach’s $\alpha = .89$). As expected, participants believed they were significantly more likely to become like the positive ($M = 5.35$) than the negative exemplar ($M = 2.93$), $F(1, 76) = 39.72, p < .001$.

We surmised that differences in the motivating effects of the positive and negative exemplars would arise because participants would believe themselves to be more likely to become like the positive than the negative exemplar. To examine this possibility, we tested whether participants’ beliefs that they could become like the exemplar would mediate the impact of exemplar type on motivation (Baron & Kenny, 1986). First we regressed motivation on exemplar type and obtained a significant effect, $\beta = .22, p = .05$. Then we regressed the mediator, likelihood of becoming like exemplar, on exemplar type and obtained a significant effect, $\beta = .57, p < .001$. Finally, we regressed motivation on both exemplar type and likelihood of becoming like the exemplar simultaneously. The effect of likelihood of becoming like the exemplar was significant, $\beta = .27, p = .05$; the effect of exemplar type was no longer significant, $\beta = .07, p = .61$. A Sobel (1982) test revealed that the mediated path was marginally significant, $z = 1.91, p = .056$.

Overall, the results of Study 1 suggest that people are more likely to be motivated by a healthy than an unhealthy exemplar. The healthy target represented the positive health that participants believed they themselves could achieve in the future, inspiring them to improve their own eating and exercise habits. The negative exemplar, by contrast, provided no such boost to motivation. This is consistent with previous research indicating that people are not motivated by worse-off others unless they perceive themselves to be vulnerable to the other’s negative outcome (Lockwood, 2002). Because participants did not expect to become like this negative exemplar, they felt no need to work hard to avoid this outcome.

STUDY 2: BELIEFS ABOUT THE MOTIVATING IMPACT OF PHYSICAL FITNESS AND BODY SHAPE EXEMPLARS

In Study 1, participants were motivated only by a positive fitness exemplar. In Study 2, we examined whether it might be

possible to boost the impact of a negative exemplar by focusing on the body shape consequences of poor fitness. Although young adults may not be concerned about developing problems with their level of fitness, they are more concerned about developing weight and body shape problems (Powell et al., 2001) and so may be more responsive to exemplars with poor body shapes.

To test this possibility, we assessed participants' beliefs about the motivating impact of positive exemplars illustrating either excellent physical fitness or a desirable body image and negative exemplars illustrating either poor fitness or an undesirable body image. Participants rated the degree to which such exemplars would motivate them to improve their own health-related behaviors. We expected that participants would be motivated by positive exemplars regardless of whether body shape consequences were highlighted; that is, participants would report being equally motivated by exemplars described as physically fit and those described as slim. In contrast, we expected that participants would be motivated by negative exemplars only when the body shape consequences of poor fitness were made salient; that is, they would report being more motivated by negative exemplars described as overweight than by those described simply as being in poor physical condition.

Method

Participants. Participants were 33 female and 24 male introductory psychology students who took part in the study for course credit. The average age of participants was 19.3 years.

Procedure. Participants were invited to take part in a study on health-related behaviors. They were told, "The researchers are interested in finding out how people motivate themselves. Sometimes we are motivated to avoid becoming like a person who is experiencing difficulties or a negative outcome, and sometimes we are motivated to try to become more like someone who is experiencing success or a positive outcome." Participants were then asked to indicate how motivated they would be to improve their health-related behaviors by a set of 12 negative and 12 positive exemplars, presented in random order. Six negative exemplars represented negative physical fitness (e.g., "a very unathletic person," "a person with weak muscles," "a very out-of-shape person"), and six represented negative weight-related or body-shape outcomes associated with poor fitness (e.g., "a person who has gained 10 pounds," "a very overweight person," "a person with an unattractive figure"). Six positive exemplars represented positive physical fitness (e.g., "a person in excellent physical condition," "a person with strong muscles," "a very athletic person"), and six represented positive weight-related or body-shape outcomes associated with good fitness (e.g., "a person with a very attractive body," "a person who is slim," "a person

with a 'supermodel' body"¹). Participants rated the degree to which they would be motivated by each of these 24 exemplars on a 9-point scale ranging from 1 (*not at all*) to 9 (*very*).

Results and Discussion

Negative exemplars. Ratings of motivation by negative physical fitness exemplars were combined in a single index (Cronbach's $\alpha = .88$), as were ratings of motivation by negative body shape exemplars (Cronbach's $\alpha = .93$). To test for differences in motivation by exemplar types, we conducted a 2 (Gender) \times 2 (Exemplar Type) mixed factorial ANOVA, with Exemplar Type as the within-participants variable and Gender as the between-participants variable. The main effect of exemplar type was significant, $F(1, 55) = 13.23, p < .001$; participants reported that they would be more motivated by the overweight exemplars ($M = 3.39$) than by the out-of-shape exemplars ($M = 2.94$). Neither the main effect of Gender ($F(1, 55) = 1.34, p = .25$) nor the Gender \times Exemplar Type interaction ($F < 1$) was significant.

Positive exemplars. Ratings of motivation by positive fitness exemplars were combined in a single index (Cronbach's $\alpha = .86$) as were ratings of motivation by positive body shape exemplars (Cronbach's $\alpha = .94$). The main effect of condition was not significant, $F(1, 55) = 2.19, p = .14$; participants reported that they would be similarly motivated by the positive fitness exemplars ($M = 4.52$) and the positive body shape exemplars ($M = 4.33$). The main effect of gender also was not significant, $F(1, 55) = 2.43, p = .13$. Unexpectedly, the Gender \times Exemplar Type interaction was significant, $F(1, 55) = 7.09, p = .01$. Although female participants reported that both the body shape ($M = 4.89$) and fitness exemplars ($M = 4.68$) would be highly motivating, male participants reported that the body shape exemplars ($M = 3.56$) would be somewhat less motivating than would the fitness exemplars ($M = 4.30$).

Finally, we examined the impact of the positive relative to the negative exemplars. Consistent with our findings in Study 1, participants expected to be more motivated by the positive ($M = 4.43$) than by the negative exemplars ($M = 3.17$), $F(55) = 43.68, p < .001$.

Overall, as expected, participants reported that they would be more motivated by negative exemplars who were described as overweight than by those simply described as out of shape. Presumably, the poor body shape exemplar activated participants' concerns about their own body image, motivating them to consider changing their own health-related behaviors. The out-of-shape exemplar, in con-

¹A target with a "supermodel" physique is not necessarily a positive exemplar from a health perspective and may in fact represent an unhealthy weight. We described such exemplars as positive because participants were expected to view them as desirable future selves.

trast, did not activate concerns about physical fitness; because these undergraduate participants were likely in reasonably good physical condition and were not experiencing serious problems related to their level of fitness, the out-of-shape exemplar would not be perceived as a likely future self.

In contrast, both the positive body shape and fitness exemplars were perceived to be motivating. Female participants, however, tended to be more motivated by the positive body shape exemplars than did males; this is not surprising given the strong societal pressures placed on women to be thin (e.g., Striegel-Moore, Silberstein, & Rodin, 1986). Moreover, this study's emphasis on a slim, "supermodel" body, which is more often associated with women, may have boosted the likelihood that females rather than males would view the positive body shape exemplars to be highly relevant. Males may be most likely to view such exemplars to be relevant when they highlight a lean, toned physique rather than simply a slim body (Pope et al., 2000). Interestingly, male participants did not differ from females in their perceptions of the impact of the negative body shape exemplars; although males may have been less motivated to become thin, they were no less motivated to avoid becoming overweight.

Participants generally expected to be more motivated by the positive than by the negative exemplars. Thus, although participants may be motivated to some degree by a negative body shape exemplar, the results of Study 2 suggest that motivation will be enhanced more by a positive body shape or fitness exemplar. It is possible, however, that people are strongly motivated by negative body shape exemplars but are either uncomfortable acknowledging that they are unhappy with their own weight or are reluctant to admit that they would use the misfortune of another person as a tool to motivate themselves. In a third study, we assessed the actual impact of such exemplars on participants' behavioral intentions. We exposed participants to the same positive and negative exemplars used in Study 1 but added information regarding the body shape consequences of the exemplars' fitness level.

STUDY 3: THE IMPACT OF FITNESS EXEMPLARS HIGHLIGHTING POSITIVE OR NEGATIVE BODY SHAPES ON EATING AND EXERCISE MOTIVATION

Studies 1 and 2 focused on the impact of positive and negative exemplars on motivation. In Study 3, we also examined the degree to which positive and negative exemplars would operate through fundamentally different self-regulatory strategies. People can be driven by goals to approach desirable end states or to avoid undesirable end states (e.g., Carver & Scheier, 1998; Elliot & Harackiewicz, 1996). In his analysis of self-regulation, Higgins (1997; 1998) suggested that people can be characterized by two key regulatory orientations: promotion and prevention. People with a strong pro-

motion focus are sensitive to the presence or absence of positive outcomes; they tend to be concerned with achieving the self they would ideally like to be, focusing on their hopes, wishes, and aspirations. These people tend to favor a strategy of pursuing gains or successes. In contrast, people with a strong prevention focus are sensitive to the presence or absence of negative outcomes; they tend to be more concerned with the self they believe they ought to be, focusing on their duties, responsibilities, and obligations. These people tend to favor a strategy of avoiding losses or failures.

Higgins and colleagues argued that promotion and prevention orientations are stable individual differences (e.g., Higgins, 1998; Higgins & Silberman, 1998), but these orientations also can be activated by cues in the environment. For example, it is possible to induce a focus on promotion or prevention by framing performance incentives either in terms of benefits to be gained (a promotion cue) or losses to be avoided (a prevention cue; e.g., Förster, Higgins, & Idson, 1998; Higgins, Shah, & Friedman, 1997; Roney, Higgins, & Shah, 1995). Exemplars may serve as one such performance incentive. We have argued that positive health exemplars boost motivation because participants hope to become like the healthy other in the future. If this is the case, then positive exemplars should activate a promotion orientation. Positive exemplars highlight the rewards of pursuing success; when people believe that they can attain a similarly successful outcome in the future, their goals to promote such an outcome should be enhanced. In contrast, we have argued that negative exemplars will boost motivation to the extent that an individual feels vulnerable to the other's negative outcome. Negative exemplars, who highlight the costs associated with failure, should therefore activate strong prevention goals. To the extent that people believe they could suffer similar misfortunes in the future, their goals to avoid such negative outcomes should be enhanced. Consistent with this possibility, previous studies found that downward comparisons boosted prevention but not promotion focus when participants believed themselves to be vulnerable to the worse-off other's outcome (Lockwood, 2002). To date, the impact of positive exemplars on regulatory focus has not been assessed. Study 3 thus provides the first test of the possibility that exemplars activate a regulatory focus congruent with the strategy highlighted by the exemplar; that is, positive exemplars boost promotion but not prevention focus, and negative exemplars boost prevention but not promotion focus.

Participants were exposed to a healthy exemplar with a desirable body shape or an unhealthy exemplar with an undesirable body shape. To ensure that both male and female participants viewed the positive exemplar to be a possible future self, we created an exemplar with a healthy weight rather than an overly thin, "supermodel" body. Participants then rated their health-related motivation and regulatory focus. We expected that both positive and negative exemplars would enhance motivation. However, we expected that positive ex-

emplars would boost only promotion orientation, and negative exemplars would boost only prevention orientation.

We also used Study 3 to confirm that participants would perceive themselves to be vulnerable to the outcome experienced by an overweight exemplar. In Study 1, we found that a negative fitness exemplar had no effect on motivation. In Study 3, in contrast, we predicted that a negative body shape exemplar would boost motivation by activating participants' fears that they might themselves become overweight. Accordingly, we included a measure of body shape concern. In addition, to confirm that the negative body shape exemplar acted specifically on participants' feelings about their own weight, rather than simply on their level of fitness, we assessed participants' satisfaction with both their weight and fitness. We expected that participants exposed to the poor body shape exemplar would be less satisfied with their weight, but that their fitness satisfaction would be unaffected. Finally, in Study 1, we found that participants believed they would be unlikely to become like a negative fitness exemplar and consequently were motivated only by the positive exemplar. In Study 3, we predicted that participants would see the negative body shape exemplar as a more plausible future self; accordingly, we assessed participants' perceptions of the exemplars' relevance to them and their beliefs that they might become like the exemplars in the future.

Method

Participants. Participants were 139 female and 92 male introductory psychology students who received course credit for taking part in the study. Five participants were excluded from the analyses because they received incomplete questionnaires in error. Two additional participants were excluded because they had previously taken part in a similar study and, consequently, disbelieved the cover story. Altogether, 136 female and 88 male participants were included in the analyses.² The average age of participants was 19.8 years.

Procedure. Study 3 used the same basic design and cover story as Study 1: Participants were asked to read a self-description, ostensibly written by a previous participant in the study. Targets were matched with participants on gender. The bogus self-descriptions were similar to those used in Study 1, but included additional information to emphasize body shape and weight. The positive exemplar noted, "when

I went for a check up last Monday, the physician said that my weight is perfect for my height ... I'm really happy with my body shape ... I feel slim and energetic and generally in-shape." By contrast, the negative exemplar noted, "when I went for a check up last Monday, the physician said I'm a bit overweight for my height ... I'm really not happy with my body shape ... I feel flabby and tired and generally pretty out-of-shape." After reading the self-description, participants rated the exemplar's health on the same five items used in Study 2.

Next, participants went on to what they believed to be the main part of the study, a questionnaire regarding their own health-related activities. They rated themselves on a set of 42 items designed to tap their health-related motivation (e.g., "I plan to eat less junk food," "I plan to eat more well-balanced meals," "I plan to get regular cardiovascular exercise," "I plan to develop more athletic-related hobbies"). This scale included the motivation items used in Study 2 but was expanded to improve the scale's reliability.

Participants then completed a measure of regulatory focus (Lockwood, Jordan & Kunda, 2002). This measure includes nine promotion goal items (e.g., "I frequently imagine how I will achieve my hopes and aspirations," "I am focused on achieving positive outcomes in my life") and nine prevention goal items (e.g., "I frequently think about how I can prevent failures in my life," "I am more oriented toward preventing losses than I am toward achieving gains"). Ratings were made on a 9-point scale ranging from 1 (*not at all true of me*) to 9 (*very true of me*).

Next, participants rated themselves on 10 items designed to tap their body image concern (e.g., "I often worry that others will think I am fat," "I frequently fear that I'll put on weight," "I am generally worried about looking unattractive"). Ratings were made on a 9-point scale ranging from 1 (*not at all true of me*) to 9 (*very true of me*).

To establish that the negative exemplar would activate weight-related rather than fitness-related concern, we also included items measuring fitness satisfaction ("How satisfied are you with your level of fitness?") and weight satisfaction ("How satisfied are you with your weight?"). Participants rated their satisfaction on a 9-point scale ranging from 1 (*not at all satisfied*) to 9 (*very satisfied*).

Finally, participants rated how relevant they perceived the exemplar to be for the purpose of comparison. Ratings were made on a scale ranging from 1 (*not at all relevant*) to 9 (*very relevant*). Participants then completed the same three items used in Study 1 to assess the degree to which participants believed they might become like the exemplar in the future.

Results and Discussion

Exemplar ratings. Exemplar ratings were combined to form a single index (Cronbach's $\alpha = .97$). The positive exemplar was perceived to be significantly healthier ($M = 7.73$)

²In previous research (Lockwood, Marshall, & Sadler, in press), cultural background has been shown to influence responses to academic exemplars, with Asian Canadian participants showing greater motivation by negative exemplars than European Canadians. Because the introductory psychology class at the University of Toronto includes a high percentage of Asian Canadians, we also assessed ethnic background in Study 3. However, ethnic background had no effect on any of the dependent variables, presumably because participants of all cultural groups were concerned about body image; negative exemplars had an impact on both Asian and European Canadian cultural groups.

than was the negative exemplar ($M = 2.45$), $F(1, 148) = 1365.91$, $p < .0001$.

Motivation ratings. Motivation ratings were combined to form a single index (Cronbach's $\alpha = .95$). A 2 (Gender) \times 3 (Condition) ANOVA revealed the main effect of exemplar condition to be significant, $F(2, 218) = 3.17$, $p = .04$. Participants exposed to a positive exemplar ($M = 5.56$) were more motivated than were no-exemplar controls ($M = 5.11$; $p = .04$). Participants exposed to a negative exemplar ($M = 5.65$) were also more motivated than were controls ($p = .02$). The motivation of participants exposed to the positive and negative exemplars did not differ ($p = .67$). Thus, as expected, participants were motivated by both the positive and negative exemplars.³

The main effect of Gender was also significant, $F(1, 218) = 9.72$, $p = .002$; female participants were more motivated overall ($M = 5.66$) than were male participants ($M = 5.10$). The Gender \times Condition interaction was not significant, $F < 1$.

Regulatory focus. Both the promotion and prevention subscales were highly reliable (Cronbach's $\alpha = .85$ and $.83$, respectively). For promotion focus, a Gender \times Condition ANOVA revealed a significant main effect of condition, $F(2, 218) = 3.31$, $p = .04$. Participants exposed to the healthy exemplar had a stronger promotion focus ($M = 7.23$) than did participants exposed to the unhealthy exemplar ($M = 6.83$; $p = .04$) or participants exposed to no exemplar ($M = 6.82$; $p = .03$). Participants exposed to the unhealthy exemplar did not differ from those exposed to no exemplar ($p = .96$). The main effect of Gender was also significant, $F(1, 218) = 4.14$, $p = .04$; female participants' promotion focus ($M = 7.09$) was stronger than that of male participants ($M = 6.77$). The Gender \times Condition interaction was not significant, $F(2, 218) = 1.49$, $p = .23$.

A different pattern emerged for prevention focus. The main effect of Condition was marginally significant, $F(2, 218) = 2.66$, $p = .07$. Participants exposed to the unhealthy exemplar had a stronger prevention focus ($M = 5.91$) than did participants exposed to no exemplar ($M = 5.31$; $p = .02$) and participants exposed to the healthy exemplar ($M = 5.53$), although this latter difference did not reach significance ($p = .14$). The prevention focus of participants exposed to the healthy exemplar did not differ from controls ($p = .40$). Neither the main effect of Gender nor the Gender \times Condition interaction was significant (both F s < 1).

Overall, this pattern of findings is consistent with our hypotheses: The positive exemplar activated participants' focus

on pursuing desirable outcomes, whereas the negative exemplar tended to activate participants' focus on avoiding undesirable outcomes.

Body image concern. Body image items were combined to form a single index (Cronbach's $\alpha = .95$). A Gender \times Condition ANOVA revealed a significant main effect of Condition, $F(2, 218) = 3.14$, $p = .05$. Participants exposed to a negative exemplar expressed greater concern about their body shape ($M = 5.73$) than did participants exposed to a positive exemplar ($M = 4.73$; $p = .003$) and participants exposed to no exemplar ($M = 5.06$; $p = .05$). Participants exposed to the positive exemplar did not differ significantly from controls ($p = .32$). Thus, the exemplar who described a poor body shape activated participants' own concern about their body image. The main effect of gender was also significant, $F(1, 218) = 52.29$, $p < .001$; female participants ($M = 5.95$) were more concerned about their body image than were male participants ($M = 3.95$). The Gender \times Condition interaction was not significant, $F(2, 218) = 1.40$, $p = .25$.

Fitness and weight satisfaction. As expected, participants in the three exemplar type Conditions did not differ significantly in their fitness satisfaction, $F(2, 220) = 1.08$, $p = .34$; across Conditions, they were relatively satisfied with their fitness level ($M = 5.08$). In contrast, a one-way ANOVA revealed a significant effect of Condition on weight satisfaction, $F(2, 220) = 6.28$, $p = .002$; participants exposed to the negative exemplar ($M = 5.01$) were less satisfied with their weight than were participants exposed to the positive exemplar ($M = 6.33$; $p < .001$) and marginally less satisfied than were those exposed to no exemplar ($M = 5.68$; $p = .08$). Participants exposed to the positive exemplar were actually marginally more satisfied than were those exposed to no exemplar, $p = .08$. This is consistent with previous research indicating that participants evaluate their own attributes more favorably when they are inspired by an exemplar of success (e.g., Lockwood & Kunda, 1997; Mills, Polivy, Herman, & Tiggeman, 2002).

Relevance. As expected, participants did not differ in their relevance ratings of the positive ($M = 4.84$) and negative ($M = 4.61$) exemplars; the main effect of Condition was not significant, $F < 1$. Consistent with our hypotheses, both exemplars were perceived to be relevant compared to others. The main effect of Gender was significant, $F(1, 161) = 10.26$, $p = .002$; female participants ($M = 5.14$) perceived the exemplars to be more relevant than did male participants ($M = 4.08$). The Gender \times Condition interaction was not significant, $F < 1$.

Likelihood of becoming like the exemplar. Likelihood ratings were combined to form a single index (Cronbach's $\alpha = .85$). Participants believed they were significantly more

³The motivation scale included items related to both eating and exercise behaviors. We also examined these two subscales separately; however, the pattern of results was highly similar for each. The exercise subscale was positively correlated with the eating subscale ($r = .60$, $p < .001$); accordingly, we included the exercise and eating items in a single index measuring overall health-related motivation.

likely to become like the positive ($M = 5.45$) than the negative ($M = 3.97$) exemplar, $F(1, 148) = 23.25, p < .001$. Nevertheless, the negative body shape exemplar was sufficiently plausible as a future self to motivate participants. Indeed, we had surmised that the negative body shape exemplar in Study 3 would be a more plausible future self than the negative fitness exemplar used in Study 1. Accordingly, we compared likelihood of becoming like the exemplar across the two studies. This analysis used the same three likelihood rating items for each study, and both studies involved participants drawn from the pool of first-year psychology students in their first term at the same university. However, analyses across studies are problematic because participants for each study were recruited at separate times and were therefore not directly comparable; thus, this analysis is exploratory only. Consistent with our predictions, we found that participants believed they were more likely to become like the negative body shape exemplar in Study 3 ($M = 3.97$) than the negative fitness exemplar in Study 1 ($M = 2.93$), $F(1, 104) = 7.76, p = .006$. In contrast, ratings of becoming like the exemplar were similar among participants exposed to the positive body shape exemplar in Study 3 ($M = 5.45$) and the positive fitness exemplar in Study 1 ($M = 5.35$), $F < 1$.

It could also be argued that the negative body shape exemplar influenced participants more than the negative fitness exemplar because the former was seen as a more “downward” comparison; that is, participants may have perceived the exemplar who was overweight to be more unhealthy than the exemplar who was simply described as out of shape. However, health ratings of the poor fitness exemplar in Study 1 ($M = 2.66$) did not differ from health ratings of the poor body shape exemplar in Study 3 ($M = 2.45$), $F(1, 104) = 1.11, p = .29$. This finding is consistent with the possibility that the negative body shape exemplar motivated participants more than the negative fitness exemplar, not because the body shape exemplar was more unhealthy but rather because participants perceived a greater likelihood of becoming like this exemplar in the future. However, because this comparison is drawn across studies, we cannot draw firm conclusions about possible differences in the perceived health of the negative fitness and body shape exemplars.

In Study 1, only positive exemplars boosted health-related behavioral intentions. In contrast, both exemplars in Study 3 boosted behavioral intentions. This suggests that exemplars that highlight either positive or negative body images can motivate others to adopt healthier eating and exercise behaviors. Moreover, the regulatory focus findings provide support for our hypothesis that positive exemplars motivate people by boosting their goals to achieve a positive health outcome: Participants exposed to the positive exemplar experienced an enhanced focus on promotion. The positive exemplar did not, however, activate body image concerns or dissatisfaction with weight. Thus, the positive exemplar enhanced people’s desire to self-improve without making them unhappy with

their current body shape. By contrast, negative exemplars that motivated people tended to activate fears about their vulnerability to a potentially negative outcome: Participants exposed to the negative exemplar experienced an enhanced focus on prevention and reported stronger body image concerns. The overweight and unhealthy exemplar activated concerns about participants’ own physical appearance, frightening them into contemplating behavior changes that would help them to avoid this negative outcome. Moreover, this exemplar reduced participants’ satisfaction with their weight but not with their fitness level, suggesting that this negative exemplar exerted an influence primarily as a result of the inclusion of the weight-related information. Thus, participants appear to be more sensitive to the example of a negative exemplar who highlights weight problems than to a negative exemplar who highlights poor physical fitness.

It is possible, however, that the negative body image exemplar may have boosted motivation because this exemplar highlighted information about both weight and fitness; these two pieces of information together may have been more influential than the information about fitness alone. Nevertheless, we note that in Study 2, in which weight and fitness were highlighted separately, negative exemplars illustrating weight concerns were perceived to be more motivating than were those illustrating fitness concerns. In any case, it may be difficult realistically to separate these two issues. To the extent that people perceive an exemplar to be overweight, they may also typically assume that this exemplar is out of shape.

Interestingly, female participants reported higher motivation, promotion orientations, and body image concerns than did male participants; female participants also viewed both the positive and negative exemplars to be more relevant than did male participants. This result is not altogether surprising; given the often unrealistic female body image standards portrayed in the media (Stice & Shaw, 1994), women may be especially attuned to information relevant to their weight and body shape and may be chronically more motivated to improve their physical appearance. However, some evidence suggests that younger men are experiencing increasing pressure to achieve desirable body shapes (Braun, Sunday, Huang, & Halmi, 1999; Jacobi & Cash, 1994). Consistent with this possibility, we found that male participants exposed to positive and negative body shape exemplars also experienced a boost in their eating and exercise motivation.

GENERAL DISCUSSION

Taken together, these studies provide strong evidence that exemplars can prompt people to consider healthy lifestyle changes. Positive exemplars that emphasized excellent fitness (Studies 1 and 2) and desirable body images (Studies 2 and 3) boosted people’s motivation to adopt healthier eating and exercise behaviors. The positive exemplars illustrated the possi-

ble physical condition and physique for which they could strive, and provided a template of the behaviors needed to achieve this result. A different pattern emerged with respect to the negative exemplars. A negative exemplar that highlighted poor fitness had no impact on participants (Study 1); a mediation analysis provided evidence that, because participants did not expect to become like this exemplar in the future, their motivation to avoid such a negative outcome was unaffected. In contrast, an exemplar that highlighted poor body image was motivating (Study 3). The negative body shape exemplar activated participants' own body image concerns; because participants lacked positive illusions in this domain (Powell et al., 2001) and thus believed they might become like the other in the future, their motivation to avert this outcome was enhanced. This exemplar illustrated a feared, to-be-avoided self, highlighted a possible negative future, and, consequently, activated strategies aimed at avoiding this outcome.

We note that it also might be possible to boost the motivating effect of negative fitness exemplars by highlighting other health consequences, such as a higher risk of heart attacks or osteoporosis. Such costs are likely to be experienced later in life, however, and as a result may be less compelling to a young audience than more immediate body shape consequences.

Previous studies on social comparison and motivation examined reactions to either downward (Lockwood, 2002) or upward comparisons (e.g., Lockwood & Kunda, 1997) separately or compared reactions to these comparisons after priming regulatory focus (e.g., Lockwood et al., 2002). The current studies provide the first direct comparison of spontaneous motivation reactions to upward and downward comparisons and thus provide new evidence regarding the relative effectiveness of these two kinds of exemplars. This research also demonstrates important connections between social comparison and regulatory focus. In past research (Lockwood, 2002), comparisons to worse-off others boosted people's prevention but not promotion orientation. Study 3 replicates this finding and also provides evidence that comparisons to better-off others boost promotion but not prevention goals. Thus, exemplars activate a regulatory focus that is congruent with the strategy that they emphasize.

Past studies on health comparisons have typically examined the effect of comparisons on coping and affect (for a review, see Tennen et al., 2000). Similarly, studies on body image comparisons have focused on the self-evaluative and affective consequences of such comparisons (e.g., Lin & Kulik, 2002). It is certainly important to understand the effects of social comparisons on such variables; however, such studies do not provide information on the motivational consequences of health comparisons. Our studies provide evidence indicating that both positive and negative exemplars can boost intentions to change health-related behavior, provided people believe they can become like the healthy or unhealthy other in the future. When exemplars are seen as

unlikely future selves, as might often be the case with negative exemplars, motivation to change behaviors will be unaffected.

It is important to note that our research assessed behavioral intentions and regulatory focus rather than behavior itself. By showing that upward and downward comparisons can activate people's desire to alter their lifestyle choices, these studies provide a first step in understanding how exemplars can influence health. Certainly, there is evidence that both behavioral intentions (e.g., Ajzen, 1991, 1996; Ajzen & Madden, 1986) and regulatory orientation (e.g., Shah, Higgins, & Friedman, 1998) can predict behavior. Nevertheless, in future research, it will be important to assess behavior directly. Future studies should also assess the effect of health exemplars on behavior over time. Campaigns involving health exemplars often use posters, 30-s television timeslots, or brief advertisements in newspapers or magazines when seeking to change complex and well-ingrained behaviors such as smoking, exercise, and eating; it is not clear that such brief exposure to exemplars will have long-term consequences. However, audiences may encounter specific campaign messages on numerous occasions, as when a public service message is played many times on television. Such repeated exposures may indeed be beneficial for people who are attempting to maintain their motivation to make ongoing behavior changes. It will therefore be worthwhile to examine the degree to which both single and repeated exposures to health exemplars influence motivation and behavior over time.

It will also be important to investigate possible negative consequences of health exemplar programs. A number of health campaigns have used exemplars similar to those in the current studies in an attempt to encourage people to make positive changes to their diet and exercise habits. Study 3 suggests that negative body image exemplars, although effective in enhancing motivation, also can increase concern about weight and physical attractiveness. Such anxieties may ultimately have negative physical health consequences; for example, body image dissatisfaction is associated with a range of eating disorders (e.g., Cooley & Toray, 2001; Dykens & Gerrard, 1986; Heatherton, Mahamedi, Striepe, Field, & Keel, 1997; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Moreover, among people who believe they have little or no ability to improve their body shape, a worse-off other could potentially threaten their self-perceptions without boosting motivation. In one study, for example, students who scored high on dispositional pessimism and who consistently compared themselves to worse-off others experienced performance decrements and higher levels of depression than did their peers (Gibbons, Blanton, Gerrard, Buunk, & Eggleston, 2000). Thus, although negative body image exemplars can be effective in boosting motivation, repeated exposure to such exemplars may also at times be associated with undesirable health-related outcomes.

In contrast, positive exemplars may provide an effective means of boosting people's motivation without damaging their body image. In Study 3, the positive exemplar's weight was described by a physician as "perfect" for his or her height; that is, the exemplar was attractive without being underweight. Nevertheless, more extreme body shape exemplars, including media images that portray an unrealistically thin body shape, may have a negative effect on body image satisfaction (e.g., Lin & Kulik, 2002; Pinhas, Toner, Ali, Garfinkel, & Stuckless, 1999; Posavac, Posavac, & Posavac, 1998). The motivation activated by underweight exemplars ultimately may have negative consequences if people are encouraged to adopt unhealthy patterns of dieting behavior (Mills et al., 2002). It is therefore important to create positive health exemplars, such as those used in Study 3, that boost motivation to engage in healthier eating and exercise habits without heightening body dissatisfaction.

In future research, it may be useful to consider additional variables that might moderate the effect of health-related exemplars on motivation. For example, it may be that people who are highly satisfied with their current body shape will be unaffected by negative fitness or body shape exemplars because they deem it highly unlikely that they could experience a similar fate. Conversely, people who are extremely dissatisfied with their current fitness levels or body shape may be unaffected, or even negatively affected, by positive fitness or body shape exemplars because they deem it highly unlikely that they could achieve a similarly positive fate. Only when one believes that one might become like an exemplar in the future will one be motivated to consider making changes to one's own eating and exercise behaviors. Individual differences in perceptions of fitness and body shape may thus play a role in determining responses to health-related exemplars.

In these studies, we examined health motivation among college-aged men and women. It is possible that the effect of exemplars varies across the lifespan, as people's beliefs and expectations about their current and future health change. Our research found that younger people were unaffected by negative exemplars unless the exemplars highlighted body image concerns. Among older adults, who may be more attuned to the prospect of future health problems, negative fitness exemplars may activate feared selves as strongly as, or even more strongly than, negative body image exemplars. Thus, age may play a key role in determining the motivating effects of positive and negative health exemplars.

North Americans are currently dealing with record rates of obesity and inactivity (Mokdad et al., 1999), which are expected to lead to increasing rates of heart disease, diabetes, osteoporosis, and cancer (Health Canada, 1999). Given the human suffering associated with such conditions, it is crucial to find ways to encourage people to take steps that may lead to a healthier future. Exemplars offer one means

of encouraging people to adopt healthier lifestyles. By providing vivid and compelling depictions of the benefits of good health habits, and the costs of poor health habits, these exemplars may help people to harness their day-to-day motivation to eat more nutritious foods and become more active.

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