

# Motivation Contagion When Instructing Obese Individuals: A Test in Exercise Settings

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We examined motivation contagion in a hypothetical exercise setting. Exercise science students ( $n = 164$ ) were provided with quotes of hypothetical male and female obese exercisers displaying different quality of motivation to start an exercise program. We used a 3 (exerciser motivation)  $\times$  2 (exerciser gender)  $\times$  2 (student gender) between-subjects experimental design to examine students' (a) motivation to instruct, (b) interpersonal style, (c) perception of barrier efficacy of the exerciser, and (d) effort to identify factors that could maximize the effectiveness of an exercise program for the exerciser. Results showed that students displayed less controlled motivation and rated the exerciser as more capable of overcoming barriers to exercise when they perceived the exerciser to be autonomously motivated. However, students, particularly females, reported more autonomy support and invested more effort toward female exercisers with controlled motivation. Our findings indicate that motivation contagion effects are plausible in exercise settings and may affect interactions between fitness instructors and obese clients.

**Keywords:** motivation contagion, self-determination, autonomy support, controlling behaviors, barrier efficacy, confirmation bias

Obesity is related to many chronic health conditions, such as type 2 diabetes and related cardiovascular diseases (Sullivan, Morrato, Ghushchyan, Wyatt, & Hill, 2005). The social context, especially instructors' interpersonal styles, can play a salient role in influencing exercisers' motivation and adherence (e.g., Edmunds, Ntoumanis, & Duda, 2007). Extensive research has shown that many obese individuals feel stigmatized and report that they are treated disrespectfully by health professionals, including fitness instructors (Anderson & Wadden, 2004; Puhl & Heuer, 2009). Currently, it is unknown whether beliefs and behaviors of health professionals toward obese individuals are partly influenced by their perceptions of the different motivations of the latter to engage (or not) in health-related behaviors. The effect of perceptions of others' motivation on the perceiver's own

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motivation and instructional style has been labeled *motivation contagion* (Wild & Enzle, 2002). Thus, in this study, we were interested to explore the extent to which motivation contagion effects might be in operation when instructing obese clients with different motivations for exercise engagement.

We used the self-determination theory (SDT; Ryan & Deci, 2000) framework in this study. According to SDT, there are different interpersonal styles to instruct, but most SDT-based studies have distinguished between an autonomy supportive and a controlling interpersonal style. *Autonomy support* refers to behaviors that support individuals' psychological needs by providing meaningful rationales for engaging in an activity, acknowledging negative feelings, and offering choices (Deci, Eghrari, Patrick, & Leone, 1994). In contrast, *controlling behaviors* thwart psychological needs via the use of coercion, intimidation, and conditional acceptance (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010). Studies in the exercise domain have indicated that perceived autonomy support may lead to higher adherence levels (e.g., Edmunds, Ntoumanis, & Duda, 2008) and better mental health outcomes (e.g., Rouse, Ntoumanis, Duda, Jolly, & Williams, 2011). In contrast, controlling instructional behaviors have been associated with decreases in physical activity participation (e.g., Vansteenkiste, Simons, Soenens, & Lens, 2004).

Based on the tenets of SDT, motivation can be categorized into different types according to their underlying degree of self-determination. Intrinsic motivation (doing an activity for the enjoyment it provides), integrated regulation (performing an activity because it is congruent with personal goals and values), and identified regulation (engaging in an activity because it offers personally valued outcomes) are indices of *autonomous* motivation. Introjected regulation (acting to avoid internal pressures) and external regulation (acting as a result of external pressure or reward) are indices of nonautonomous, or *controlled*, motivation. Finally, *amotivation* refers to a state in which a person lacks both autonomous and controlled motivation. Previous research has shown that more autonomous forms of motivation are associated with efficacy to overcome exercise barriers (Thøgersen-Ntoumani & Ntoumanis, 2006), involvement in physical activity (Edmunds et al., 2008), and adherence to weight control behaviors (Silva et al., 2011).

## Motivation Contagion

Stemming from the tenets of SDT, Wild and Enzle (2002) suggested that apart from the direct application of interpersonal support or control, one's motivation may be enhanced or undermined based on his or her perception of motivation of other people within the social environment. Individuals subconsciously draw on their perceptions of other people's motivation and self-generate expectations regarding their own quality of task involvement and engagement in an activity. These expectations will in turn shape their actual motivation toward the activity and, if they are in a position of authority, might influence their interpersonal style toward their subordinates in ways that are congruent with their expectations. For instance, previous research in the educational domain has documented that teachers' interpersonal style may be influenced by their perceptions of students' motivation. Pelletier and Vallerand (1996), Skinner and Belmont (1993), and Sarrazin, Tessier, Pelletier, Trouilloud, and Chanal (2006) showed that when teachers perceived

students to be more autonomously motivated, they offered them more autonomy support. In contrast, controlling behaviors were used when students were perceived to have controlled motivation. Pelletier, Séguin-Lévesque, and Legault (2002) and Taylor, Ntoumanis, and Standage (2008) replicated these findings and identified a teacher's self-determined motivation to instruct as a mediator in the relationship between instructional style and student motivation.

## Gender Differences

Previous research has examined gender differences in perceived receipt of autonomy support with mixed findings. For instance, Grolnick, Gurland, DeCoursey, and Jacob (2002) compared levels of autonomy support provided by mothers using both objective ratings by external raters and self-reports by their sons and daughters, and found no differences between sons and daughters. In contrast, Soenens and Vansteenkiste (2005) found that girls, compared with boys, reported higher levels of perceived autonomy support from their mothers. No studies have explored gender differences in perceived *provision* of autonomy support. However, research outside the SDT literature has suggested that males and females may have different orientations toward both seeking and providing support to others. For instance, when compared with men, women are more likely to seek and receive support from others. Women are also more ready to provide support to others, as such a behavior is assumed to be accepted and appreciated (Barbee et al., 1993). In our study we were interested to explore whether the gender of the participant and the gender of the exerciser would moderate potential motivation contagion effects in terms of not only the provided autonomy supportive/controlling motivational strategies, but also with regard to instructors' motivation to instruct.

## The Current Study

The overarching aim of the current study is to contribute to the motivation contagion literature by examining this process in a previously untested setting that has important public health ramifications (instructing obese exercisers). We also extended previous studies (e.g., Pelletier et al., 2002; Pelletier & Vallerand, 1996) by considering the possible, but overlooked, moderating role of gender, and by measuring variables that have not been previously assessed in the extant literature, including non-self-reported outcomes. Specifically, we presented to exercise science students profiles of fictitious obese individuals with differing motivation for exercise adoption. We hypothesized that participants would report higher levels of autonomous (controlled) motivation to instruct when the hypothetical exerciser was perceived as autonomously (controlled) motivated to exercise (H1). Furthermore, we predicted that participants perceiving an exerciser to be autonomously (controlled) motivated would rate autonomy supportive (controlling) behaviors as more effective for motivating the individual to exercise (H2). In addition, we hypothesized that participants would rate the autonomous exerciser as capable of overcoming barriers to exercise (H3) and would invest more effort in identifying factors that maximize the effectiveness of a training program for that individual (H4).

## Methods

### Participants

Exercise science students ( $n = 164$ ; 102 males;  $M_{\text{age}} = 19.85$  years,  $SD = 1.83$ ) from a British university participated for course credit. They were mainly white (93.90%); 10.98% had experience as gym instructors. The procedures of the study were approved by an ethical review committee of a British university. All participants provided written informed consent.

### Procedures

Participants were given a scenario in which they were instructors (hereby called *instructors*) at a gym and were presented with photos of three obese individuals who had recently signed up to this hypothetical gym. The hypothetical exercisers shown were male or female clients, middle-aged, white, and visibly obese with a purported body mass index of 33. Instructors were provided with quotes given by these exercisers regarding their reasons to begin exercising. These quotes were intended to imply different types of motivation to exercise: autonomous (e.g., “it is important for me to lead a healthy lifestyle”), controlled (e.g., “my partner has been nagging me to start exercising for a long time”), and neutral reasons (e.g., “you can call that my New Year resolution”). Thus, instructors were randomly allocated into one of six conditions (autonomous motivation, controlled motivation, neutral motivation  $\times$  male exerciser, female exerciser). As a manipulation check, the instructors were asked to rate their perceptions of motivation of all three exercisers. Our design was a 3 (exerciser motivation)  $\times$  2 (exerciser gender)  $\times$  2 (instructor gender) between-subjects experimental design.

The scenarios referred to obese individuals at the beginning stages of an exercise program to emulate a situation in which instructors are unfamiliar with the exercisers, and therefore motivation contagion effects are likely to be stronger. Similar strategies of introducing participants to strangers can be found in previous research on motivation contagion (e.g., Radel, Sarrazin, Legrain, & Wild, 2010).

The instructors then completed the remaining parts of the questionnaire by focusing on one of the exercisers, depending on the allocated condition. The target male and female exerciser was depicted with the same photo within each motivation condition. Instructors then performed an imagery exercise, using a prerecorded script, in which they imaged themselves instructing the target exerciser in a gym. The imagery scripts were used to facilitate the vividness of the scenario. Following the imagery activity, we asked the instructors to rate the ease of mentally creating the images described in the script (“How easy was it for you to mentally create the images described in the scenario?”) using a 7-point scale ranging from 1 (*very hard*) to 7 (*very easy*). They reported a mean score of 5.65, indicating that they generally found it easy to form images of the scenarios described in the scripts. Instructors then reported their own motivation toward instructing the target exerciser, the motivational strategies they believed would be effective to motivate the exerciser, and their perceptions of the efficacy of the exerciser to overcome barriers to exercise. Finally, instructors were asked to identify as many factors as possible that could maximize the effectiveness of an exercise program designed for the exerciser. This was used as a proxy measure of instructors’ investment of effort to instruct.

Previous research has shown that physically more attractive individuals may be perceived as more competent in various aspects of life (Eagly, Ashmore, Makhijani, & Longo, 1991). To eliminate the potential confounding effect of attractiveness, we asked in a pilot study 19 postgraduate students to rate the perceived attractiveness of the individuals portrayed in the photos. Results of a repeated-measures ANOVA indicated that the perceived attractiveness ratings of the hypothetical exercisers were not significantly different ( $p = .46$ , partial  $\eta^2 = .052$ ).

## Measures

**Perceived Motivation of Exercisers.** The Behavioral Regulations in Exercise Questionnaire (BREQ; Mullan, Markland, & Ingledew, 1997) was used to measure the perceived motivation of the exercisers. The original scale is a self-report measure of intrinsic motivation, identified regulation, introjected regulation, and external regulation to exercise. In our study, we modified the items to measure the motivation of the hypothetical exerciser as perceived by the instructor (e.g., “because other people probably said he should”). Due to the fact that the instructors had to complete the scale with regard to all three exercisers, as well as due to the overall length of the whole questionnaire pack, only two items per subscale from the questionnaire were used. Items with the best face validity were chosen from the original scale. Autonomous motivation was represented by combined intrinsic motivation and identified regulation scores, and controlled motivation by combined introjected and external regulation scores. Amotivation was not measured in our study because we wanted to specifically contrast autonomous and controlled forms of motivation and because the scenario referred to clients who had already signed up to an exercise program. Cronbach alphas for autonomous and controlled motivation in this study were .92 and .74, respectively.

**Motivation to Instruct.** Instructors’ intrinsic motivation, identified regulation, and external regulation to instruct were measured using an adapted version (e.g., “I would instruct him/her because that would be fun”) of the Situational Motivation Scale (Guay, Vallerand, & Blanchard, 2000), which taps intrinsic motivation, identified regulation, external regulation, and amotivation. Guay et al. (2000) developed the scale to measure situational motivation toward an activity, such as that induced by an experimental manipulation. They also provided evidence supporting the reliability and construct validity of scale scores. The original questionnaire also included a subscale to measure amotivation. We did not include this subscale as we felt the construct was not applicable when the instructor meets a new exerciser.

**Motivational Strategies.** Eight items from the Health Care Climate Questionnaire (HCCQ; Williams, Grow, Freedman, Ryan, & Deci, 1996) and eight items from the Controlling Coach Behaviors Scale (CCBS; Bartholomew et al., 2010) were adapted to measure autonomy supportive (e.g., “Provide him/her with choices and options”) and controlling (“Promise to reward him/her but only if he/she did well”) motivational strategies to instruct the exercisers, respectively. Previous research (e.g., Fortier, Sweet, O’Sullivan, & Williams, 2007) has also adapted the HCCQ to measure perceived autonomy support in the exercise domain, and found results that supported the reliability and validity of the scale scores. The CCBS was originally

developed to measure controlling behaviors in the sport domain. Validation studies showed that scale scores were associated with those of other constructs in ways that were in line with SDT predictions (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011). In our study, instructors were told that they were not asked to rate which strategies were generally more appropriate, but should rate them according to their perceived effectiveness for the target exerciser.

**Perceived Efficacy.** Instructors rated their perceptions of the target exerciser's barrier efficacy using eight items adapted from the Self-Efficacy for Exercise Behaviors Scales (Sallis, Pinski, Grossman, Patterson, & Nader, 1988). The scale has been used in previous SDT-based studies (e.g., Teixeira et al., 2006) and its scores have been associated with those of autonomous motivation to exercise. The original items were modified to measure the barrier efficacy of the exerciser as perceived by the instructor (e.g., "Stick to his/her exercise program after a long, tiring day at work").

**Effort to Instruct.** Instructors were asked to list up to 30 factors (e.g., psychological, physiological) that might help maximize the effectiveness of the exercise program for the target exerciser. Instructors were allowed to use resources from the Internet to complete the task and were not given a time limit. The total number of factors (factors deemed irrelevant were deleted, e.g., "train with a clear head") they identified was used as a non-self-report measure of their investment of effort to instruct the exerciser.

## Data Analyses

Internal consistencies of scale scores were evaluated using Cronbach alphas. Pearson correlations were calculated to examine associations between measured constructs. To evaluate group differences between experimental manipulations, analysis of variance (ANOVA) or multivariate analysis of variance (MANOVA) was used. Significant group differences were followed up by simple effects tests (Tabachnick & Fidell, 2007).

# Results

## Preliminary Results

Descriptive statistics, Cronbach alphas, and Pearson correlation between constructs are presented in Tables 1 and 2.

## Manipulation Check

Two repeated-measures ANOVAs, with the three hypothetical individuals as the within-subject factor, were conducted as manipulation checks. We first compared the ratings for perceived autonomous motivation. The main effect was significant:  $F(2, 326) = 389.44, p < .001, \text{partial } \eta^2 = .705$ . Instructors rated the exerciser portrayed as autonomously (controlled) motivated to have the most (least) autonomous motivation. We then compared the ratings for perceived controlled motivation. The effect was again significant:  $F(2, 326) = 413.12, p < .001, \text{partial } \eta^2 = .717$ .

**Table 1 Descriptive Statistics and Cronbach Alphas of Measured Variables**

	Possible Range	Neutral Condition		Autonomous Condition		Controlled Condition		$\alpha$	F(2,152)	Partial $\eta^2$
		M	SD	M	SD	M	SD			
1. Intrinsic motivation to instruct	1-7	5.19	1.04	5.52	0.73	5.29	1.04	.79	1.70	.022
2. Identified regulation to instruct	1-7	5.25	0.94	5.08	0.81	5.22	0.90	.60	0.64	.008
3. External regulation to instruct	1-7	4.68	0.91	4.18	0.94	4.61	1.14	.71	3.67*	.046
4. Autonomy supportive behaviors	1-7	5.94	0.57	5.93	0.48	5.97	0.57	.59	0.94	.001
5. Controlling behaviors	1-7	3.10	0.93	2.79	0.83	3.06	0.88	.73	1.67	.021
6. Perceived barrier efficacy of target exerciser	1-5	2.41	0.69	3.18	0.42	2.34	0.70	.85	23.98**	.240
7. Investment of effort to instruct	1-30	8.04	4.75	11.11	4.54	11.91	4.79	—	10.17**	.118

Note. \* $p < .05$ ; \*\* $p < .001$ .

**Table 2 Pearson Correlations Between Variables**

	1	2	3	4	5	6	7	8
1 Perceived autonomous motivation of target exerciser	—							
2 Perceived controlled motivation of target exerciser	-.55*	—						
3 Intrinsic motivation to instruct	.18*	-.10	—					
4 Identified regulation to instruct	-.02	.07	.58*	—				
5 External regulation to instruct	-.13	.16*	-.29*	.09	—			
6 Autonomy supportive behaviors	-.02	.04	.26*	.26*	-.07	—		
7 Controlling behaviors	-.02	.13	-.13	-.07	.02	-.28*	—	
8 Perceived barrier efficacy of target exerciser	.53*	-.25*	.21*	.01	-.19*	-.08	-.12	—
9 Investment of effort to instruct	-.01	.12	.20*	.10	-.18*	.26*	-.05	.14

Note. \* $p < .05$ .

Instructors rated the exerciser portrayed as autonomously (controlled) motivated to have the least (most) controlled motivation. These results suggest that the scenarios were successful in inducing different perceptions of the exercisers' motivation.

### Instructor Motivation (H1)

Given that past research (e.g., Chambliss, Finley, & Blair, 2004) has shown a strong implicit anti-fat bias among fitness instructors and exercise science students, we first assessed participants' beliefs regarding weight loss (Stotland & Zuroff, 1990) and biases against overweight individuals (Crandall, 1994). Results of two 2-way (Condition  $\times$  Exerciser's gender) ANOVAs showed no between group differences in these ratings. Thus, these variables were not used as covariates in the analyses.

A three-way (Condition  $\times$  Target exerciser's gender  $\times$  Instructor's gender) MANOVA was conducted with instructors' intrinsic motivation, identified regulation, and external regulation as dependent variables. No interaction effects were found, but a multivariate main effect for condition was significant:  $\lambda = .916$ ,  $F(6, 300) = 2.24$ ,  $p = .039$ , partial  $\eta^2 = .043$ . The univariate statistics showed there was a main effect of condition on external regulation (Table 1). Simple effects contrasts indicated that instructors in the autonomous condition had lower values of external regulation compared with both the neutral and controlled conditions.

### Instructional Strategies (H2)

A three-way MANOVA was conducted to examine differences on two dependent variables, namely autonomy supportive and controlling instructional behaviors with regard to the target exerciser. The interactions of condition by exerciser's gender,  $\lambda = .889$ ,  $F(4, 302) = 4.58$ ,  $p = .001$ , partial  $\eta^2 = .057$ , as well as exerciser's gender by instructor's gender,  $\lambda = .947$ ,  $F(2, 151) = 4.25$ ,  $p = .016$ , partial  $\eta^2 = .053$ , were significant. Univariate tests indicated a significant condition by exerciser's gender interaction effect on autonomy supportive behaviors:  $F(2, 152) = 8.80$ ,  $p < .001$ , partial  $\eta^2 = .104$ . The interaction effect between the exerciser's and instructor's genders was also significant for autonomy supportive behaviors,  $F(1, 152) = 7.42$ ,  $p = .007$ , partial  $\eta^2 = .047$ .

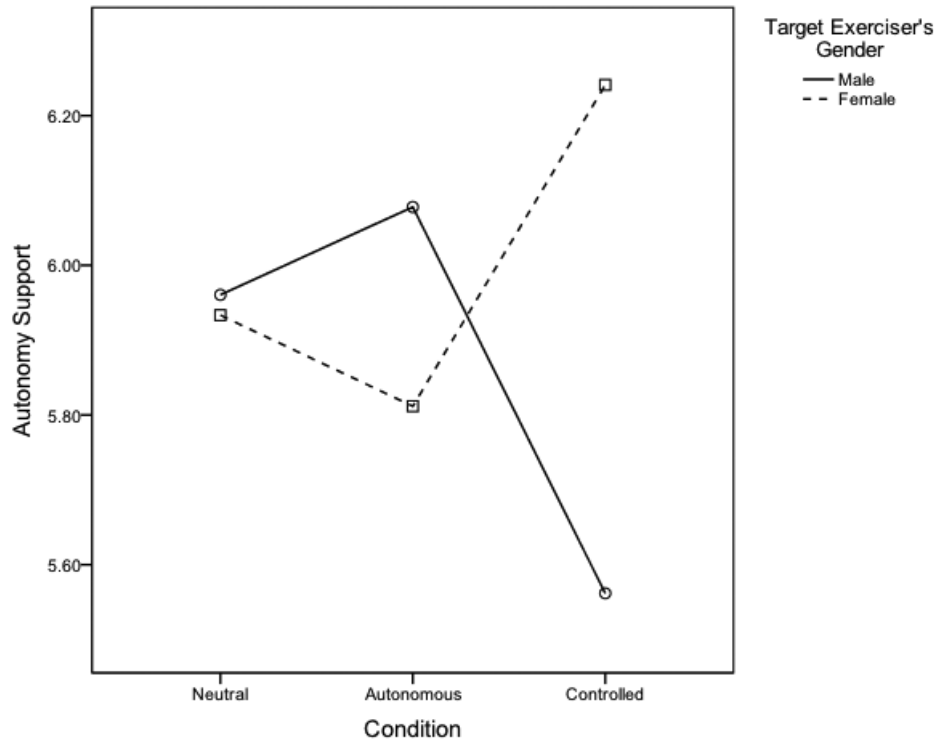
Tests of simple effects were conducted to explore the significant interactions. Regarding the interaction between condition and exerciser's gender (Figure 1), the instructors rated autonomy supportive behaviors as *less* effective when instructing a male exerciser who was controlled as opposed to autonomous or neutral in his motivation. In contrast, the instructors rated autonomy supportive behaviors as *more* effective when instructing a female exerciser who was controlled as opposed to autonomous or neutral in her motivation. The difference in autonomy support scores between male and female exercisers with controlled motivation was significant.

As for the interaction between the genders of the exerciser and the instructor (Figure 2), it was found that female instructors rated autonomy support as more effective for female than male exercisers. Ratings of autonomy support effectiveness for female exercisers were higher when given by female as opposed to male instructors.

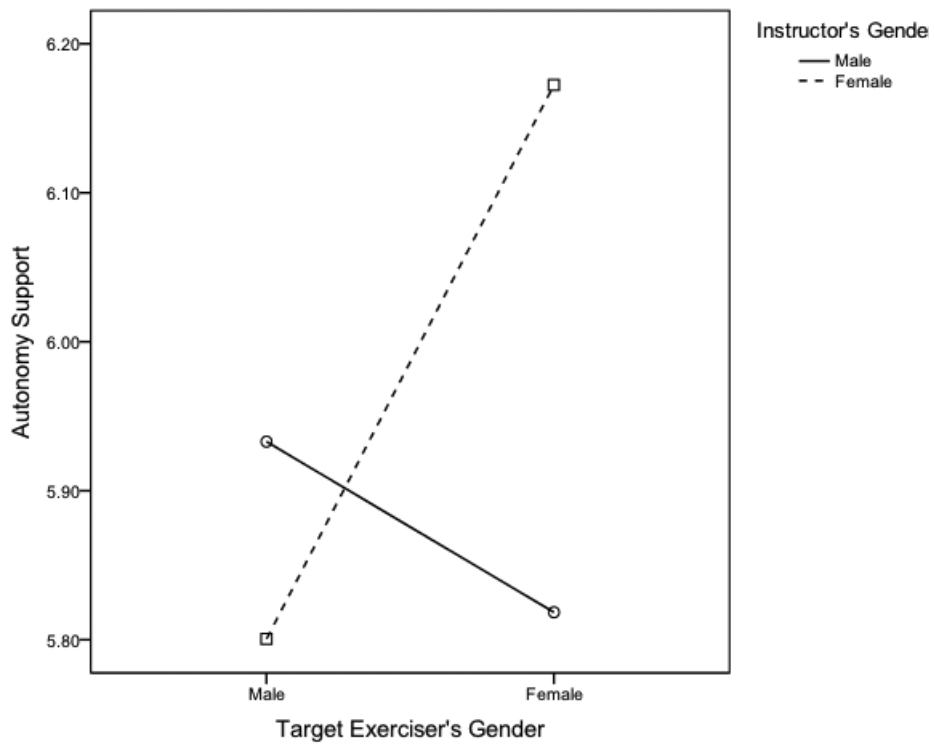
### Barrier efficacy (H3)

A three-way (Condition  $\times$  Exerciser's gender  $\times$  Instructor's gender) ANOVA was conducted on instructors' perception of the target exerciser's ability to overcome





**Figure 1** — Gender differences in instructors' perceived effectiveness of provision of autonomy support across different conditions.

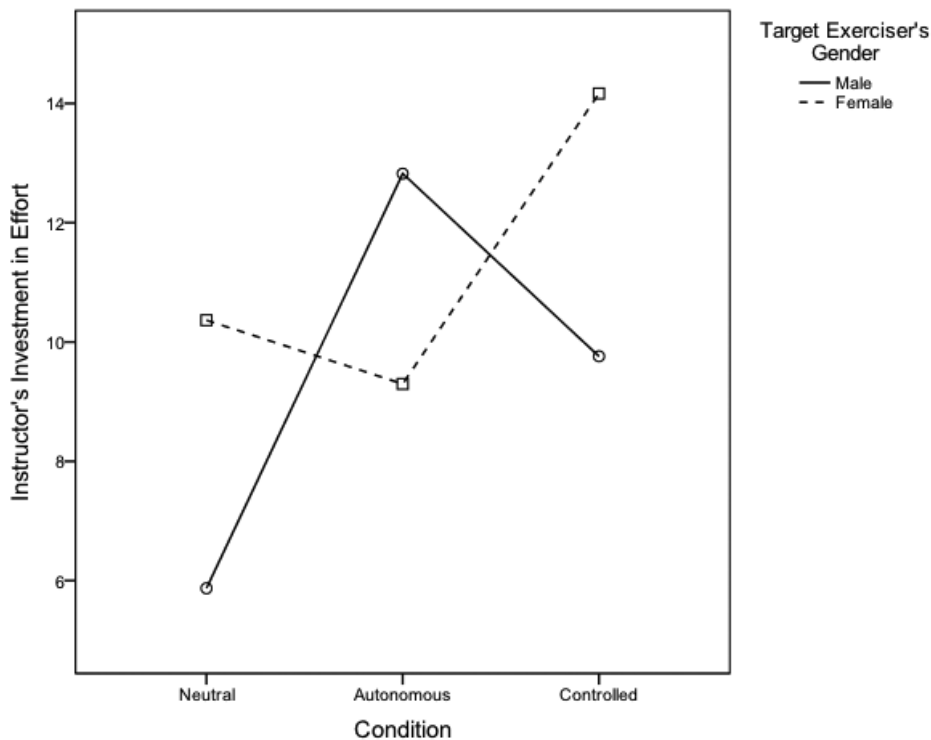


**Figure 2** — Gender differences in instructors' perceived effectiveness of autonomy support to male and female exercisers.

barriers to exercise. The assumption of equal variances was violated; thus, a more stringent test ( $p < .01$ ) was used to infer significance. There were no significant interaction effects, but a main effect for condition was found (see Table 1). Simple effects contrasts showed that instructors felt that the autonomously motivated exerciser was more likely to overcome barriers compared with the exerciser portrayed with controlled or neutral motivation.

### Effort (H4)

A three-way ANOVA was conducted on the effort invested by the instructors to identify factors that could maximize the effectiveness of the exercise program for the target exerciser. The more stringent test ( $p < .01$ ) was used as the equality of variance assumption was violated. A significant condition by exerciser's gender interaction was found:  $F(2, 152) = 14.09, p < .001, \text{partial } \eta^2 = .156$  (Figure 3). When the target exerciser was perceived as neutral or controlled in their motivation, levels of effort were higher when the exerciser was female than male. In contrast, when the exerciser was perceived to be autonomously motivated, levels of effort were higher when the exerciser was male than female.



**Figure 3** — Gender differences in instructors' effort investment across different conditions.

## Discussion

This study builds on and extends work on motivation contagion by showing how gender and instructors' perceptions of obese individuals' motivation could affect

the instructors' motivation, efficacy beliefs, and instructional style. Our first hypothesis (H1), which stated that instructors' own motivation might be influenced by their perceptions of the motivation of the exerciser, was partially supported: Instructors showed lower (higher) levels of external regulation when instructing an exerciser with autonomous (controlled) motivation. Further, we also hypothesized that instructors would rate the autonomous exerciser as being more capable of overcoming barriers to exercise (H3). Our findings supported this hypothesis, as instructors felt that the autonomously (as opposed to controlled) motivated exerciser was more likely to overcome barriers to exercise.

Hypotheses 2 and 4 were only partly supported. We predicted instructors in the autonomous condition to rate autonomy supportive behaviors as more effective for motivating the exerciser (H2), and to invest more effort in identifying factors to maximize the effectiveness of a training program for that individual (H4). Our results indicated that perceptions of exerciser autonomous motivation did result in high ratings of instructor autonomy support and effort investment. However, this was the case only in reference to a male exerciser. For a female exerciser an unexpected (opposite) effect was found with perceptions of controlled motivation resulting in higher ratings of autonomy support and effort investment. Further, higher ratings of autonomy support to the female exerciser were more likely to be provided by female than male instructors.

Our findings make important conceptual and practical additions to the motivation contagion literature by showing that obese individuals who are perceived to be motivated by external pressures or contingencies are likely to create expectations that result in their instructors (a) feeling not optimally motivated to instruct them, (b) being doubtful about the exercisers' ability to maintain their exercise behavior, (c) rating, paradoxically, as less effective for these individuals motivational strategies that are considered in the SDT literature to be universally adaptive and effective, and (d) investing less effort to identify factors that are important for the success of a tailored exercise program. Instructor training programs need to emphasize the interplay between instructor and exerciser motivation and highlight the importance of supporting overweight exercisers who appear less self-determined to exercise. The observed motivation contagion effects demonstrate that observers are sensitive to interpersonal cues that carry information regarding actors' motivation. Such cues have the potential to affect the observers' own motivation and interpersonal style toward the actors, possibly via the formation of expectations with regard to quality of task engagement and automatic goal inferences (e.g., Hassin, Aarts, & Ferguson, 2005; Wild & Enzle, 2002). The extent to which such expectations and inferences persist over time and how they can be modified is currently unknown.

Importantly for the motivation contagion literature, some of our findings did not apply to the hypothetical female exerciser for whom an opposite pattern was observed. Specifically, instructors rated autonomy supportive behaviors to be more effective, and invested more effort for female exercisers who were portrayed to be motivated for extrinsic reasons. Barbee et al. (1993) suggested that gender role expectations make it easier for females than males to activate social support when needed. This might partly explain why instructors in our study were more willing to provide autonomy support and invest effort to the female exerciser who was perceived to be struggling with motivation issues.

Our study has a number of strengths. First, previous research has shown that obese individuals are sometimes treated unfairly or disrespectfully by health professionals (Anderson & Wadden, 2004). Our findings showed that such biases might partly operate via motivation-related mechanisms (motivation contagion). Whether motivation contagion effects might be partly responsible for why instructors, or more generally health professionals, are unsuccessful in helping obese individuals adhere to physical activities is an interesting research question that could be pursued by future research. In addition, to our knowledge, this was the first study that looked at motivation contagion effects with reference to exercise instruction. Further, we explored moderation effects of gender, which have been overlooked in the motivation contagion literature. In addition, we measured outcome variables that have not been previously assessed in that literature, including a non-self-reported outcome to reduce common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

In contrast, the use of hypothetical instructor–exerciser scenarios is a limitation of this work. Future studies could be conducted in actual exercise settings utilizing attendance records and observer ratings of instructor interpersonal styles. The use of a shortened form of the BREQ to measure perceived motivation of exercisers and the fact that we did not measure all types of regulations within the SDT continuum with respect to both the perceived motivation of the hypothetical exerciser and in terms of motivation to instruct (for reasons given earlier) could be perceived by some as potential limitations of this study. Researchers should consider incorporating measures for these omitted constructs (i.e., integrated regulation for exercise and introjected regulation for instructing) in future research. In our study, we looked at the potential moderating effect of gender. Other demographic variables (e.g., age, ethnicity) should also be examined as moderators in future studies. Further, only a small proportion of participants had actual experiences as fitness instructors. As many exercise science students work as gym instructors when they graduate, it was important to examine how they might respond to the hypothetical situations we created, as it is very likely that they will encounter similar situations in their future employment. From a conceptual perspective, the strength of motivation contagion might differ as a function of the experience of the observer in a given context (perhaps it will be stronger with novices, as the majority of participants were in our study). This has to be empirically tested. Replicating our work with experienced certified instructors would be a means of addressing this interesting research question. In view of the significant public health implications of obesity, our results indicate the need for more research on the bidirectional nature of the obese exerciser motivation–instructor motivation relationship.

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