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Affective and self-presentational responses to an exercise identity challenge: Investigating identity theory and the role of others

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ABSTRACT

Objectives: We examined exercisers' affective and self-presentational reactions to identity confirming or disconfirming feedback in the presence of another person.
Design: Randomized Experiment.
Methods: Adult exercisers completed baseline measures prior to a laboratory session. Participants were randomly assigned to receive exercise identity confirming (n = 54) or disconfirming (n = 47) feedback in the presence of a confederate participant. After, participants indicated their level of agreement and completed measures of affect. Lastly, participants were provided with an opportunity for impression construction and completed an additional affect measure.
Results: A MANOVA comparing groups revealed group differences, F (94, 6) = 31.88, p < .001, Λ = .33, η_p^2 = .67. Disconfirmed participants reported more negative and less positive affect, a greater desire to self-present differently, more public disagreement with feedback and more feedback rationalization. Groups did not differ on the number of solutions provided to exercise barriers. A regression analysis conducted on disconfirmed participants showed that satisfaction with self-presentation was negatively related to negative affect, β = −.411, t (45) = - 3.02, p = 0.004, and explained a significant proportion of variance, R^2 = .15, F (45, 1) = 9.15, p = 0.004; and positively related to positive affect, β = .512, t (45) = 4.03, p = .001, and explained a significant amount of variance, R^2 = .25, F (45, 1) = 16.22, p = .001.
Discussion: Findings provide support for an understudied tenet of identity theory and suggest that exercise identity feedback from others may be a legitimate source of exercise identity feedback.

1. Introduction

Identity has been described as the answer to the question "who am I" (Van Maanen, 2010, pp. 117–118). According to identity theory (Burke & Stets, 2009; Stets & Burke, 2003) the answer to this question is captured by the meanings people ascribe to themselves within the context of a given role. For example, identities capture what it *means* to be a mother, a healthy person or a dog lover. Identities play a role in self-regulation (Rhodes, Kaushal, & Quinlan, 2016; Strachan & Whaley, 2015; Stryker & Burke, 2000). In fact, Burke (2006) describes identities as self-regulatory control systems because they serve as personally relevant standards for behaviour (Stryker & Burke, 2000). When an identity is activated within an individual in a situation, that person compares how they are portrayed in that situation with his or her identity meanings. If the comparison suggests a difference, negative affect results and the person is motivated to bring situational and identity meanings in line (Stets & Burke, 2003). If the comparison suggests no difference, positive affect results as there is no need to change the situation. It is through these internal self-dynamics (Burke, 1991; Stets & Burke, 2003) that identities function as self-regulating control systems (Stryker & Burke, 2000) and ultimately encourage identity-consistent behaviour.

1.1. Exercise identity

Exercise identity reliably relates to variables that aid in exercise self-regulation (e.g., self-efficacy for exercise, exercise intentions) and actual exercise engagement (Rhodes et al., 2016; Strachan & Whaley, 2015). Only a few researchers have examined the internal self-dynamics of exercise identities (Stets & Burke, 2003). Strachan and Brawley (2008) examined individuals' reactions when their exercise identities were challenged by a hypothetical scenario. Participants were

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asked to imagine a situation where they had been much less active than usual for the past three weeks due to being busy with school or work. Compared to those with moderate exercise identity, individuals with strong exercise identity responded to the identity challenge with greater negative affect, intentions, and self-regulatory efficacy for future exercise. In another study, the more people felt that they had behaved consistently with their exercise identity meanings over the last month, the more positive affect and the less negative affect they reported; the magnitude of these reactions was moderated by exercise identity strength (Strachan, Brawley, Spink, & Jung, 2009). These studies suggest that when exercisers perceive an incongruence between their situational meanings and exercise identity meanings, they react with internal self-dynamics that are consistent with identity theory: with negative affect and in a manner that suggests they would self-regulate towards exercise identity verification. The hypothetical (Strachan & Brawley, 2008) and prospective observational (Strachan et al., 2009) natures of these studies provide foundational support for a more externally-valid test of an exercise identity challenge through experimental manipulation.

1.2. Others as a source of identity-relevant feedback

A limitation of exercise identity research, and identity research in general, is its main focus on peoples' *own* internally focused identity perceptions (Ashforth & Schinoff, 2016) of whether situational meanings are consistent with identity meanings (Riley & Burke, 1995) and the effect these have on internal self-dynamics. Riley and Burke (1995) argue for a broadened social perspective of identity theory that addresses the role of *others* in the identity feedback process. Indeed, individuals can derive information about identity verification from others in an identity-relevant situation, in addition to their own self-perceptions (Burke & Stets, 2009; Swann & Bosson, 2016). These perceptions of others about one's identity should be associated with the same internal self-dynamics as identity verification *self*-assessments (Burke, 1980). Accordingly, when individuals perceive that others view them in an identity-inconsistent manner, they should experience negative affect, and display motivation for and make efforts to change the way that others view them. When others provide information that verifies one's identity, that individual should feel positive affect, and feel no need to change the way others see them.

1.3. Self-presentation as a means of influencing others' perceptions

Self-presentation is a construct that can help explain how and why individuals work to try to have others see them in an identity-consistent manner. This construct conceptualizes individuals' attempts to control or influence the impressions others hold of them (Leary & Kowalski, 1990; Schlenker, 1980; Schneider, 1981). Indeed, Ashforth and Schinoff (2016) identify self-presentation as a key motive of identity construction. Self-presentation can take the form of *motivation* to have others see oneself differently (impression motivation) or *overt actions* designed to control how others see oneself (impression construction; Leary & Kowalski, 1990). Both self-presentation (Leary, 1995; Schlenker, 2012) and identity researchers (Swann, 1983) acknowledge that one situation which may elicit self-presentational motives occurs when individuals find their desired identities challenged. In these situations, individuals may experience impression motivation and engage in impression construction in an effort to protect the threatened identity. Self-presentation therefore provides people with a means through which they may be able to preserve their identity when it is publically threatened.

The extent to which individuals feel successful with their self-presentational efforts to preserve their identity has implications (Baumeister, 1982; Burke & Stets, 2009). When self-presentation efforts are successful, negative affect associated with the identity threat reduce (Snyder & Higgins, 1988) and the identity is sustained or strengthened (Stets & Burke, 2003). If unsuccessful, however, negative affect persists (Schlenker, 2012) and the identity remains threatened. Ongoing failure to construct the desired identity can result in abandonment of that identity and related behaviour (Stets & Burke, 2003). The extent to which exercisers feel able to self-present to others as exercisers – and correct those perceptions when others perceive them differently – is relevant to understanding how exercisers protect and maintain their identities.

1.4. Extant research on others in the identity process

Though fewer studies have addressed identity feedback from others relative to those addressing identity self-assessments (Ashforth & Schinoff, 2016; Riley & Burke, 1995), the available research is in support of identity theory. Discrepant feedback provided by or in the presence of others has implications for participants' affective reactions. For example, Stets (2005) found that, in a simulated work situation, 'workers' who received feedback from a 'manager' that under-estimated the workers' identity standard reported more negative affect than did those receiving verifying feedback or feedback that over-estimated the identity standard. Further, identity feedback from others influences individuals' self ratings (e.g., Asencio, 2011; Swann & Hill, 1982). In a naturalistic study, Asencio (2011) found that incarcerated individuals' criminal identity was influenced by their perceptions of the views that others held of them. Further the strength of this relationship was influenced by aspects about the others such as familiarity, frequency of contact, and legitimate authority. Swann and Hill (1982) showed that identity-discrepant feedback provided in the presence of others negatively impacted participants' self-views only when they did not have the opportunity to publically reject the feedback, supporting the idea that self-presentation plays a role in the identity process. Further, Riley and Burke (1995) found that when group members' assessments of an individuals' performance in a leadership situation differed from personal assessments, individuals were less satisfied with their role performance in the group.

These studies support the identity theory tenet that others serve as a source of identity-relevant information. However, studies that take into account others as a form of identity verification have not been examined in an exercise context where others are a powerful social influence (e.g., Hamari & Koivisto, 2015; Wilson & Bengoechea, 2010). Interesting questions, therefore, are whether people are affected by identity-relevant feedback from others and whether they try to influence how others see them. Others are common within exercise contexts and can include exercise partners, co-exercisers, personal trainers, friends and family. If individuals seek and react to *others'* perceptions of identity verification (Burke & Stets, 2009), then others may be a legitimate source of identity verification. Identifying additional ways to verify or reinforce exercise identity is important given that exercise identity is an established and strong correlate and predictor of exercise (Rhodes et al., 2016; Strachan & Whaley, 2015). Finally, examining the role of others as a source of identity-relevant feedback in an exercise context contributes to the applicability of identity theory across a variety of contexts (Asencio, 2011).

1.5. The present study

This study's overall purpose is to examine the affective and self-presentational reactions of exercisers when they are provided with feedback in the presence of another person who either confirms or disconfirms their strong exercise identity. Based on identity theory, we expect that individuals who receive exercise identity disconfirming feedback from others will respond to this situation with: (i) greater negative affect, (ii) less positive affect, (iii) greater impression motivation, and (iv) greater impression construction than individuals provided with confirming feedback from others. Furthermore, (v) among individuals whose identities are disconfirmed, satisfaction with their ability to self-present as an exerciser is expected to relate positively to

positive affect and negatively to negative affect. The present study addresses the call for more research on the role of others as a source of identity-feedback (Riley & Burke, 1995). This study is further justified considering that calls for investigations into the role of the social world in aspects related to exercise self-definitions, including identity (Kendzierski & Morganstein, 2009).

2. Methods

2.1. Participants

Participants were 38 men and 63 women exercisers (N = 101) between the ages of 18 and 50 (M_{age} = 22.2 years, *SD* = 5.49). To determine sample size, we used G*Power software 3.0.10 and used 80% power, a two-sided 5% significance level (Hulley, Cummings, Browner, & Newman, 2013) and two groups with six response variables, assuming a medium effect size. We estimated a medium effect size based on a previous study examining negative affect related to an identity challenge (η^2 = .133; Strachan, Flora, Brawley, & Spink, 2011). To reach these criteria, a sample size of 98 participants was needed. We confirmed that participants identified with exercise by ensuring that they scored at or above the midpoint on the exercise identity scale (Anderson & Cychosz, 1994; see Table 1 for further participant characteristics). Initially, 405 participants visited the study link; 183 of these people expressed interest in the study and met eligibility criteria. Of these people, 107 completed the experiment. Six participants were not deceived (according to a manipulation check) and their data was excluded. These six participants did not differ from deceived participants on demographic or descriptive variables with one exception; all non-deceived participants were male. The final sample included in analyses involved 101 participants.

2.2. Procedure

After attaining ethics approval from relevant ethics review boards, participants were recruited from academic and fitness classes at three post-secondary institutions in a large Canadian city. To protect the true study purpose, potential participants were told that the study aim was to assess the link between personality and future academic or exercise success, and that they would fill out an online questionnaire one week prior to and after participating in a laboratory session (though the follow-up session was bogus). Consenting participants provided information about demographics, past exercise and exercise identity online to determine eligibility and sample characteristics. To uphold the study's "pseudo" purpose, participants also completed measures of personality, academic identity and study habits. Next, participants were randomly assigned to an exercise identity confirming (*n* = 54) or disconfirming (*n* = 47) condition by random-numbers assignment (Pocock, 1983). Stratified sampling ensured equal numbers of males and females in each condition (Baumgartner & Hensley, 2006). For each eligible participant, a laboratory session was scheduled for approximately one week after this online assessment.

Table 1
Comparison of groups on demographic and descriptive variables.

	Confirming (*n* = 54)		Disconfirming (*n* = 47)	
Characteristic	*M*	*SD*	*M*	*SD*
Age	20.59	2.09	22.02	3.52
Gender[a]	1.37	0.49	1.38	0.49
Ethnicity[b]	1.33	1.16	1.74	1.75
Marital status[c]	1.06	0.3	1.21	0.55
Education level[d]	1.07	0.26	1.11	0.37
Exercise identity	5.76	0.84	5.74	1.03
Exercise bouts				
Strenuous	4.65	4.24	6.32	4.79
Moderate	3.56	3.49	3.65	3.43
Mild	3.54	4.33	5.06	5.44

[a] Regarding gender: Female = 1, Male = 2.
[b] Regarding ethnicity: "Not specified" = 0, "White" = 1, "Black" = 2, "Arab/West Asian" = 3, "East/South East Asian" = 4, "Latin/South American" = 5, "Mixed: White-Black" = 6, "Mixed: White-Arab/West Asian" = 7, "Mixed: White-East/South East Asian" = 8, "Mixed: Other" = 9.
[c] Regarding marital status: "Not specified" = 0, "Single" = 1, "Common Law" = 2, "Married" = 3, "Divorced" = 4.
[d] Education = "Not specified" = 0, "Undergraduate/College Program = 1, Graduate = 2.

2.3. Laboratory session

A pilot study, conducted with 14 participants, allowed us to test our procedures and refine our protocol. For the main study, one male and three female confederates were gender matched to participants to serve as the "other" participant. Confederates were trained to follow specific protocol. Upon arrival, the researcher led the participant and confederate (hitherto referred to as "the participants" unless otherwise specified) to a room and reminded them of the study's pseudo purpose. The researcher told participants about (false) research suggesting that long-term success in the domains of academia and exercise can be reliably predicted based on personality traits. Further, participants were told that they would receive feedback regarding how similar their personality profile (based on the online measures they had completed) was to the personality traits of the ideal (i) academic or (ii) exerciser. Participants always received exercise feedback and confederates, academic feedback.

The researcher then instructed participants to exchange profiles (under the guise of preventing biased marking) and tally the final personality score following instructions. Along with these profiles, participants were provided with a sheet outlining scores in terms of likelihood of future success in that domain based on their personality traits. This step ensured that the participant knew that the confederate had closely observed his/her personality profile and its implications for future exercise success.

Next, the researcher asked the confederate to share the score of the participant. With the confederate present, the researcher explained to the participant the meaning of his/her score in relation to the ideal exerciser profile. If the participant was randomized to the identity confirming condition, the researcher, following a script, explained that the participant's profile is very similar to the ideal "successful exerciser" and that, according to research, he/she is very likely to remain committed to exercise goals and overcome barriers and setbacks such that he/she is likely to remain physically active throughout his/her lifetime. If the participant was randomized to the identity disconfirming condition, the researcher explained that, according to research, the participant is very likely to struggle with remaining physically active throughout his/her lifetime, finding exercise barriers plentiful and difficult to overcome. Next, the researcher prompted the participant to announce the numerical score of the confederate, about which the researcher verbally explained the meaning of the confederate's score (related to academics). This feedback was always neutral such that it was not overly similar or dissimilar from the ideal academic. We reasoned that by providing the "other" person (confederate) with feedback that was both neutral and about another domain, the effects of social comparison (Festinger, 1954) would be mitigated.

The researcher then announced that she forgot something and left the room. During her 90 s absence, the confederate casually asked the participant if he/she agreed with his/her personality assessment. We reasoned that participants may use this opportunity to self-present, or attempt to construct the impression that he/she is similar or dissimilar to the feedback received (a successful or unsuccessful exerciser) by expressing agreement or disagreement with the feedback or by rationalizing the feedback. The confederate always reacted to the participant's response in a neutral manner.

Upon the researcher's return, participants completed measures of

affect related to the feedback they had received and a manipulation check. Participants were then told that an aspect of the study was to determine if brainstorming pertaining to overcoming barriers to exercise and academic success would aid in future adherence. The researcher explained that both participants would individually brainstorm solutions to barriers presented for their behaviour. The participant was "randomly" selected to go first. The confederate verbally presented the participant with five barriers to exercise; the participant was instructed to verbally provide personally relevant solutions to each barrier. This exercise provided an opportunity for impression construction.

The researcher then instructed the confederate to leave, explaining that he/she would soon be asked to return to complete his/her brainstorming session. When the confederate left, the participant filled out measures of affect related to self-presentation and situation satisfaction. The participant was then told about the true purpose of the study, debriefed about the deception, told that there would be no follow-up assessment and asked if he/she had been aware of the study's true purpose.

2.4. Measures

2.4.1. Demographics and descriptives

Participants reported their age, gender, ethnicity, marital status, education and recent physical activity levels (Table 1). To assess recent physical activity, the Godin Leisure Time Exercise Questionnaire (GLTEQ; Godin & Shephard, 1985) was used where participants reported the number of strenuous, moderate, and mild 30-min or longer exercise sessions they engaged in during a recent typical week. This scale's reliability and validity has been demonstrated (Godin & Shephard, 1985; Miller, Freedson, & Kline, 1994) and the validity of the altered scale (30-min) has been established (Amireault & Godin, 2012).

2.4.2. Exercise identity

The Exercise Identity Scale (Anderson & Cychosz, 1994) measured the extent to which each participant viewed themselves as an exerciser. Participants rated the extent to which each of nine items applied to them, using a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). Test-retest reliability and internal consistency of these scores has been demonstrated elsewhere (e.g., Anderson & Cychosz, 1994) and among the present sample (Cronbach's $\alpha = .859$).

2.4.3. Negative and positive affect

Participants completed the Weiner's (1986) affect scale by rating the extent to which they experienced 8 different emotions (e.g., depressed, happy, proud) using a 9-point Likert scale (1 = *do not feel at all*; 9 = *feel very much*). Negative and positive affect were measured on two separate occasions and for two separate purposes. First, we were interested in assessing participants' affective reactions to receiving identity feedback. Therefore, after receiving identity feedback, participants were asked, "when you reflect on the feedback you just received, how does it make you feel?" We were also interested in assessing participants' affective responses relative to their ability to self-present/impression manage during the study. Therefore, we administered the scale again at the end of the experiment (prior to debriefing). Participants were asked, "When reflecting on how you were able to present yourself over the course of this study, how does it make you feel?" Scores for the negative and positive affect subscales were computed for both administrations. Scale scores have demonstrated reliability with other samples (Weiner, 1986). Good reliability among scale items was demonstrated for positive and negative affect sub-scales at both administration points in the current study (Cronbach's α range = .865 - .904).

2.4.4. Self-presentation

We modelled our self-presentation measures after past research (e.g., Gollwitzer & Wicklund, 1985; Martin & Leary, 1999; Olsen, Hafer, Couzens, & Kramins, 2000; Riley & Burke, 1995; Swann & Hill, 1982). To assess the impression motivation aspect of self-presentation, we had participants respond to the following using a 9-point Likert scale, (1 = *did not desire*; 9 = *desire very much*): "To what extent did you feel the desire to present yourself differently than how you were portrayed in this research session?". To measure the impression construction aspect of self-presentation, we observed participants' responses to three opportunities. First, we audio-recorded participants' expressed agreement/disagreement with the feedback they received during the experiment (see procedures). Three independent raters rated these reactions using a 9-point Likert scale (1 = *do not agree at all*; 9 = *agree very much*). Inter-rater reliability was strong (Pallant, 2007) and ranged from $r = .862$ ($N = 101$, $p < .001$) to $r = .885$ ($N = 101$, $p < .001$). Second, our three raters assessed the extent to which the participants' rationalized the identity feedback using a 9-point scale (1 = *did not rationalize at all*; 9 = *rationalized very much*). Interrater reliability was moderately strong (Pallant, 2007) and ranged from .739 ($N = 101$, $p < .001$) to .660 ($N = 101$, $p < .001$). Finally, the number of exercise barrier solutions provided by participants to five hypothetical exercise barriers were assessed by three trained raters. Interrater reliability was strong ($r = .883$, $N = 101$, $p < .001$; Pallant, 2007). Mean rating scores of the three raters were created and used in analyses. Raters underwent training and trial assessments in order to ensure that raters used common rating criteria in assessing participants.

2.4.5. Situation satisfaction

Participants used a 9-point Likert scale (1 = *not at all satisfied*; 9 = *completely satisfied*) in answering the following question: "To what extent do you feel satisfied with how you were able to portray yourself to the other participant and researcher in the research session?".

2.4.6. Manipulation check

Participants used a 9-point Likert scale (1 = *completely disagree*; 9 = *completely agree)* to indicate (i) their level of agreement with the feedback received and (ii) their perceived consistency between the exercise identity feedback received and their personal view of themselves as exercisers. Scores on these two items were compared between conditions to determine if the feedback conditions had the desired effects of confirming participants' exercise identities.

2.5. Analytic plan

Four analyses were conducted. First, a MANOVA was used to compare conditions on demographic variables. A second MANOVA was conducted to determine the efficacy of our feedback in confirming or disconfirming people's exercise identities (manipulation check). Another MANOVA was used to test our hypotheses about confirmed and disconfirmed group differences. Finally, a regression analysis was conducted on participants in the disconfirmed condition to determine if satisfaction with ability to self-present as an exerciser would predict affect.

3. Results

3.1. Data management

Data were managed in line with recommendations by Tabachnick and Fidell (2007). Missing data (less than 5%) occurred randomly, as indicated by a missing value analysis. Tabachnick and Fidell (2007) purport that less than 5% missing data can be handled by any procedure with similar results. Mean substitution was thus employed. The data were examined for univariate outliers by creating a standardized z-score for each variable. Z-scores outside the range of ± 3.29 were changed to one unit larger or smaller than the next most extreme score. No multivariate outliers were detected. Assumption testing was conducted and all assumptions were met.

3.2. Descriptive statistics

Group means on demographic and descriptive variables are presented in Table 1. This table also presents a one-way MANOVA employed to determine if groups differed on these variables. The overall model was not significant; groups did not differ at baseline.

3.3. Manipulation check

A 2 × 2 MANOVA employed to ensure that our manipulation was effective. Participants in each group (confirmed versus disconfirmed) were compared on their (i) level of agreement with feedback and (ii) perceived consistency between feedback and personal view as an exerciser. The overall model was significant, $F(2, 98) = 47.60$, $p < .001$; $\Lambda = .51$; $\eta_p^2 = .49$. Confirmed participants reported more agreement with feedback ($M = 7.50$, $SD = 1.68$) compared to disconfirmed participants ($M = 4.51$, $SD = 2.43$). Further, confirmed participants felt this feedback was more consistent with their exercise identities ($M = 7.31$, $SD = 1.72$) than disconfirmed participants ($M = 3.53$, $SD = 2.21$).

3.4. Main analyses

A 2 × 6 MANOVA (condition [confirmed, disconfirmed] X outcome [negative affect, positive affect, desire to portray differently, agreement, rationalize, solutions]) comparing groups on outcomes was significant, $F(94, 6) = 31.88$, $p < .001$; $\Lambda = .33$, $\eta_p^2 = .67$. Univariate follow-up analyses (see Table 2) revealed that disconfirmed participants reported greater negative affect, $F(99, 1) = 48.43$, $p < .001$, $\eta_p^2 = .33$, and less positive affect, $F(99, 1) = 183.83$, $p < .001$, $\eta_p^2 = .65$ about the feedback they received as compared to confirmed participants. Disconfirmed participants expressed greater desire to portray themselves differently, $F(99, 1) = 11.71$, $p < .001$, $\eta_p^2 = .11$; publicly expressed less agreement with feedback, $F(99, 1) = 26.80$, $p < .001$, $\eta_p^2 = .21$; and were more likely to rationalize feedback, $F(99, 1) = 14.72$, $p < .001$, $\eta_p^2 = .13$, than confirmed participants. Participants in the two conditions did not differ significantly on the number of solutions they provided to potential exercise barriers.

A regression analysis revealed that satisfaction with self-presentation significantly predicted negative affect, $\beta = -.411$, $t(45) = -3.02$, $p = .004$. Satisfaction with self-presentation also explained a significant proportion of variance in negative affect, $R^2 = .15$, $F(45, 1) = 9.15$, $p = .004$. Satisfaction with ability to self-present was also related to positive affect, $\beta = .51$, $t(45) = 4.03$, $p < .001$, and explained a significant proportion of variance, $R^2 = .25$, $F(45, 1) = 16.22$, $p = .001$.

4. Discussion

We examined the affective and self-presentational reactions of individuals with a strong exercise identity to either identity confirming or disconfirming information provided in the presence of others. Exercisers given identity disconfirming information responded with more negative and less positive affect about the way they were portrayed than those who received identity confirming information. Further, disconfirmed participants expressed greater motivation to self-present differently (impression motivation) and, in the case of one of two outcomes, displayed greater self-presentation efforts (impression construction) than those whose identities were confirmed. Finally, the more satisfied participants were with their self-presentation the less negative and the more positive affect they reported.

Table 2
Comparison of groups on affective and self-presentational variables.

Variable		Confirming		Disconfirming	
	Scale Range	*M*	*SD*	*M*	*SD*
Affect	1–9				
Negative		1.51[a]	1.22	3.64	1.83
Positive		7.55[a]	1.57	3.43	1.46
Agreement with feedback	1–5	6.38[a]	1.64	4.23	2.48
Rationalization of feedback	0–9	0.62[a]	1.19	2.11	2.54
Desire to self-present differently	1–9	4.97[a]	2.48	6.57	2.22
Self-presentation challenge		10.44	3.28	9.97	3.73

[a] $p < .05$.

4.1. Affective reactions

The finding that people who received identity-disconfirming information reported more negative and less positive affect than those whose received identity confirming information aligns with identity theory (Burke & Stets, 2009) and research (e.g., Burke & Stets, 2009; Stets & Burke, 2003; Stets, 2005) including exercise identity research (Strachan & Brawley, 2008; Strachan et al., 2009). The affective responses that exercisers experience relative to identity verification represent an important internal self-dynamic (Stets & Burke, 2003) in the identity verification process. According to Ashforth and Schinoff (2016), the experience of affect is indicative of the strength or importance of that identity to the individual. Further, affective reactions signal how one is doing in terms of identity verification and further motivates the individual to take action to reduce any discrepancy (Burke & Stets, 2009). Less research has examined affective responses when identity feedback is derived from *others* relative to when identity feedback involves self-judgements (see Stets, 2005 for an exception). This study shows that the affective responses that occur when an exercise identity is challenged or confirmed, also occur when the feedback comes from others. To our knowledge, this finding has not been demonstrated in the exercise identity literature and is important as it demonstrates that others are valid source of identity information. In future, researchers should examine how individuals react to identity-relevant information in terms of specific, discrete emotions, versus general, aggregate measures of negative or positive affect as measured presently. Indeed, researchers have argued that negative emotions (e.g., shame and guilt) are unique and should be examined separately (Tracey & Robins, 2004).

4.2. Self-presentation

When identity-relevant feedback from others is at odds with identity meanings (i.e., the present study), people are motivated and should take steps to align situational and identity meanings (Burke & Stets, 2009; Stets & Burke, 2003). These efforts may take the form of self-presentation through impression motivation and construction (Martin & Leary, 2001; Schlenker, 2012; Swann, 1983) because self-presentation denotes an effort to influence the impressions others have of oneself (Leary & Kowalski, 1990; Schlenker, 1980; Schneider, 1981). In the present study, participants who had received identity-disconfirming information from others expressed a greater desire to present themselves differently (impression motivation) and disagreed with and publically rationalized the feedback (impression construction) more so than their confirmed counterparts. These findings align with past research. Swann and Hill (1982) report that people whose identity had been challenged in the presence of another verbally refuted discrepant feedback. Ours is the first study to demonstrate these self-presentational reactions to challenged *exercise* identities and the findings confirm that others are an important source of exercise identity information (Ashforth & Schinoff, 2016; Burke & Stets, 2009; Schlenker, 2012).

Participants did not differ in the number of solutions they provided to exercise barriers as a function of the feedback received. Disconfirmed participants may not have felt a greater need than confirmed participants to present themselves as exercisers, as hypothesized. This

explanation is not likely given that directly after this activity, disconfirmed participants reported greater desire than confirmed participants to present themselves differently than they were portrayed in the situation. Rather, we may have captured different self-presentational motives for each group. As hypothesized, disconfirmed participants' provision of solutions may represent their attempt to rectify the identity challenging situation. Confirmed participants may have also offered solutions as a means of endorsing the identity confirming feedback they had received. Indeed, identity theory posits that individuals seek ongoing verification of endorsed identities (Burke, 2006; Swann & Hill, 1982). Taken together, findings suggest that disconfirmed participants were motivated to present themselves differently and engaged in impression construction through disagreement and rationalization.

4.3. Satisfaction with self-presentation

The more satisfied disconfirmed participants were with their ability to self-present as an exerciser during the study, the less negative and the more positive affect they reported. Negative affective states brought on by a challenged identity motivated individuals to remedy the identity discrepant situation through meaningful identity-relevant behaviour (Burke, 1991). Self-presentation researchers call these efforts identity construction. If the individual is able to reduce the discrepancy through identity construction, negative affect should be alleviated or dampened (Burke, 2006) and positive affect should result. Our finding supports this tenet and adds to past research. Riley and Burke (1995) found that when individuals' identity-related assessments were inconsistent with group member assessment, individuals were dissatisfied with their identity. However, these researchers did not measure affective states or self-presentational efforts pertaining to the identity verification process. This study therefore extended the scope of the identity model by including affect measures and self-presentation opportunities.

When considered in unison, the reactions of the exercisers in our study confirm that people experience the same internal self-dynamics (negative affect and a desire to alter the situation) when they receive identity-discrepant feedback from *others* as they display when they make their own identity-discrepant self-assessments (Burke & Stets, 2009; Schlenker, 2012). This finding aligns with other self-related theories. Like identity theorists, affect control theorists recognize that people seek to maintain self-meanings, that others supply information about how they are doing, and how they react depend on success at maintaining these self meanings (Burke & Stets, 2009; Robinson, Smith-Lovin, & Wisecup, 2006). Self-verification theorists also speculate that people are motivated to verify currently held self-views and they feel good when they do because it provides a sense of stability (Kwang & Swann, 2010). An interesting caveat of self-verification theory is that people seek identity-verification *even when* identity verification is conventionally less flattering (Kwang & Swann, 2010). For example, if we had included non-exercisers in our study, self-verification theory would suggest that these individuals would prefer feedback that they are *not* an exerciser as this information is identity-consistent. Proponents of yet another self theory, self-enhancement theory, would argue that non-exercisers seek to look good to others so they would welcome feedback that they are an exerciser, even if it was at odds with their self-view (see Kwang & Swann, 2010 for a review). Drawing on these kindred theories may help exercise identity researchers explore how the current findings may play out for different people, such as non-exercisers.

4.4. Strengths

Through this study, we make theoretical, methodological and practical contributions. There is a void in the identity theory literature pertaining to identity and the role of others (Ashforth & Schinoff, 2016; Riley & Burke, 1995) which this study directly addresses, specifically pertaining to exercise identity. We provide support for identity theory in showing that feedback from others is a valid source of identity information that leads to predicted internal self-dynamics (Stets & Burke, 2003). Further, through supporting identity theory tenets in an exercise context, our research points to the broad applicability of this theory (Asencio, 2011). This study also makes methodological advances over past exercise identity research by employing recommended experimental protocol (Burke & Stets, 2009) rather than hypothetical exercise identity challenges (e.g., Strachan & Brawley, 2008) which may lack in relevance to participants. Practically, we demonstrate that exercisers care and work to ensure that others see them as exercisers. Given that exercise in social situations is common (McAuley, Jerome, Marquez, Elavsky, & Blissmer, 2003), others (e.g., co-exercisers, instructors, etc.) have the potential to provide relevant information to exercisers about identity verification, which in turn may strengthen their exercise identities (Burke & Stets, 2009; Stets & Burke, 2003). We know that exercise identity is among one of the strongest correlates of exercise behaviour (Rhodes et al., 2016), so identifying sources of identity verification (in this case, others) is relevant to the promotion of exercise identities, and ultimately, exercise adherence.

4.5. Limitations and future directions

Limitations of this study should be considered. Steps taken to enhance internal validity in a laboratory environment lessened the external validity of our findings. Researchers should now examine others as a source of exercise identity information in real-world contexts. For example, real-world identity verification is not necessarily rectified through acute reactions but through continuous self-presentations via verbal and nonverbal behaviour over time (especially in ongoing relationships). Future research should address identity self-presentation in naturalistic settings that target continuous relationships such as an exerciser with a trainer. In this study, those providing identity information were unknown to participants. Researchers could also investigate whether the source of other-derived identity feedback impacts this information. Feedback from others is especially influential when it comes from others with knowledge or status (Ashforth & Schinoff, 2016), when the other is well known (Asencio, 2011; Kwang & Swann, 2010) or when there is frequent interaction (Asencio, 2011). Others encountered in exercise contexts often possess these attributes (e.g., personal trainer; exercise partner) and may be especially potent sources of identity information; researchers should explore these characteristics of others as moderating influences. Studying reactions to identity feedback in naturalistic settings and over time may allow researchers to observe the impact on actual exercise behaviour, something that was not possible in the present study. Finally, its is unclear at present whether self or other judgments represent a stronger source of exercise identity verification and researchers may want to explore this in the future.

This study supports the identity theory notion that individuals experience affective reactions to exercise identity challenging feedback from others. Further, exercisers are motivated and seek to rectify the identity-discrepant situation created by this feedback through self-presentational efforts. Together, the findings point to the legitimacy of others as a source of exercise identity information and confirm identity theory tenets.

Declaration of interest

None.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.psychsport.2018.02.005.

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