

The Role of Body-Related Self-Conscious Emotions in Motivating Women's Physical Activity

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The purpose of this study was to test a model where body-related self-conscious emotions of shame, guilt, and pride were associated with physical activity regulations and behavior. Adult women ($N = 389$; M age = 29.82, $SD = 15.20$ years) completed a questionnaire assessing body-related pride, shame, and guilt, motivational regulations, and leisure-time physical activity. The hypothesized measurement and structural models were deemed adequate, as was a revised model examining shame-free guilt and guilt-free shame. In the revised structural model, body-related pride was positively significantly related to identified and intrinsic regulations. Body-related shame-free guilt was significantly associated with external, introjected, and identified regulations. Body-related guilt-free shame was significantly positively related to external and introjected regulation, and negatively associated with intrinsic regulation. Identified and intrinsic regulations were significantly positively related to physical activity ($R^2 = .62$). These findings highlight the importance of targeting and understanding the realm of body-related self-conscious emotions and the associated links to regulations and physical activity behavior.

Keywords: self-determination theory, self-conscious emotions, women's health, physical self

It is well-documented that over 50% of the population does not follow the recommended guidelines of participating in at least 60 min of moderate and vigorous activity on most days of the week (Craig & Cameron, 2004; Haskell et al., 2007). Women consistently report lower levels of physical activity than men (Haskell et al.). The benefits of regular physical activity participation among women span

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physical (e.g., weight management, and reduced risk of cardiovascular disease, diabetes, certain cancers; see Warburton, Nicol, & Bredin, 2006), emotional (e.g., increased self-esteem and reduced in stress; Fox, 1997, 2000), and social (e.g., increased support and friendships; Sabiston, McDonough, Sedgwick, & Crocker, 2009) health facets. Consequently, understanding factors that are associated with women's physical activity behavior is an important public health priority. We propose that experiences of self-conscious emotions, namely pride, shame, and guilt, could influence women's physical activity motivation and behavior.

Self-Conscious Emotions

The majority of research in psychology domains tends to focus on basic emotions such as fear, anger, sadness, and happiness because they have distinct biological bases, specific origins, are universally experienced, have discrete facial expressions, and can be elicited in laboratory settings (Tracy & Robins, 2004, 2007c). While self-conscious emotions are not necessarily universal and may not have discrete facial expressions, they are cognitively complex (Izard, Ackerman, & Schultz, 1999), central to psychological functioning (Tracy & Robins, 2007c), and may therefore have important implications for health and well-being. Specifically, self-conscious emotions involve self-awareness, self-representation, and self-evaluative processes (Tracy & Robins, 2007c). According to Fischer and Tangney (1995), self-conscious emotions are founded in social relationships and entail reciprocal judgment and evaluation. As such, "self-conscious emotions play a central role in motivating and regulating almost all of people's thoughts, feelings, and behaviors" (Tracy & Robins, 2007c, pg. 3). Finally, self-conscious emotions facilitate the attainment of social goals by motivating the maintenance of status and the prevention of rejection (Tracy & Robins, 2007c), and generally foster perseverance in task and achievement domains (Stipek, 1995).

Given these defining features, self-conscious emotions are likely important processes in the motivation of physical activity. Physical activity environments satisfy the criteria for experiencing self-conscious emotions given: (i) the predominant social and task/achievement nature; (ii) the underlying possibility for judgment/evaluation of physical activity skills and appearance; and (iii) the perception that being seen as physically active and healthy are desired statuses (Eagly, Ashmore, Makhijani, & Longo, 1991; Martin-Ginis & Leary, 2004; White, Young, & Gillet, 1995). Specifically, self-conscious emotions may guide behavior by compelling individuals to act in socially valued ways, such as exercising, and to avoid social disapproval, like avoiding being seen as lazy or sedentary (Tangney & Dearing, 2002). Guilt, shame, and pride are the primary emotions studied within self-conscious emotion theories (Fischer & Tangney, 1995; Tangney, 1996; Tracy & Robins, 2004, 2006), and may be associated to health in general (Salovey, Rothman, Detweiler, & Steward, 2000), and specifically to physical activity.

Guilt, Shame, and Pride

Guilt and shame are construed as negatively valenced self-conscious emotions. It is argued that guilt prevails when individuals negatively evaluate their *behavior* (*I didn't go to the gym*), whereas shame occurs when individuals have a negative

evaluation of their *global self* (e.g., *I didn't go to the gym*; H. Lewis, 1971; Tangney, 1998). In this regard, guilt and shame differ only in the focus of transgression (the behavior versus the self, respectively), and produce distinct emotional, motivational, and behavioral outcomes (Tangney, Stuewig, & Mashek, 2007). For example, guilt may motivate reparative actions such as efforts to undo the harm (e.g., going to the gym after feeling guilty for eating too much), and shame may motivate effort to deny or hide from the situation eliciting the emotion (e.g., feeling ashamed of one's physique and avoiding the gym). Shame has also been consistently related to depression, anxiety, and low self-esteem (Tangney et al.), whereas guilt has been shown to be maladaptive only when confounded with shame experiences (Tangney, 1996, 1998; Tangney & Dearing, 2002; Tangney, Miller, Flicker, & Barlow, 1996). Taken together, shame and guilt are experienced as negative emotions, with shame eliciting negative outcomes and guilt leading to more positive outcomes.

In spite of the conceptual distinction, guilt and shame are at times difficult to differentiate empirically. One approach researchers have used to examine guilt and shame without the possible confounding effect of the other emotion is to statistically partial out the shared variance between them (either using semi- and partial correlations or regression analysis)—leaving constructs labeled *shame-free guilt* and *guilt-free shame* (Tangney & Dearing, 2002). Consequently, shame-free guilt represents the behavior-focused, adaptive and psychological adjustment aspects of guilt that are thought to distinguish it from shame, and guilt-free shame represents the self-focused maladaptive aspects of shame that distinguish it from guilt (Tangney & Dearing). Using such techniques, researchers have shown that these two constructs relate to several indicators of mental health and well-being (e.g., depression, externalization, anger, self-blame, self-derogation) in similar directions and strengths as guilt and shame (Lutwak, Panish, & Ferrari, 2003; Orth, Berking, & Burkhardt, 2006; Tangney & Dearing; Tangney, Wagner, & Gramzow, 1992). However, associations between shame-free guilt and guilt-free shame emotions and physical activity have not been explored.

Pride is a self-conscious emotion that results from an individual engaging in, or presenting with, valued behaviors (e.g., engaging in exercise) and/or characteristics (Fischer & Tangney, 1995; Tracy & Robins, 2007b), such as being physically fit and attractive. Similar to the operationalization of guilt and shame, it has been suggested that pride has two facets that are distinguished by the focus being on the self (e.g., *I have a great body*), called hubristic pride, or on specific achievements and behaviors (e.g., *I lost the weight I planned on losing*), labeled authentic pride (Tracy & Robins, 2007a, 2007b). Rarely studied in the context of physical activity, authentic pride has been reported to motivate individuals to engage in goal-directed behavior (Williams & DeSteno, 2008). Authentic pride is considered an adaptive positive self-conscious emotion (Tracy & Robins, 2007b). Consistent with a theoretical conceptualization (Tracy, Cheng, Robins, & Trzesniewski, 2009; Tracy & Robins, 2007a, 2007b), and best compared with the construct of overconfidence in sport and exercise psychology, hubristic pride may demonstrate both maladaptive (e.g., feeling that physical activity is unnecessary) and adaptive (e.g., enabling continued persistence on tasks) functions. Thus, authentic pride, and aspects of hubristic pride, are positively valenced emotions that have often been ignored in research focused on physical activity behavior.

Body-Related Self-Conscious Emotions

While self-conscious emotions have been investigated for their associations to general indicators of well-being, consideration of domain-specific self-conscious emotions, such as the physical self, may provide greater insight into specific behaviors (e.g., physical activity). There are several reasons why perceptions of the physical self, and more specifically perceptions of the body, should be linked to self-conscious emotions. First, the social standards pertaining to specific features of shape and appearance are salient and tend to be internalized by most individuals, especially in Western cultures (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Second, body-related self-perceptions have been linked to self-evaluative processes (e.g., stress appraisals, coping, cognitive and affective factors related to appearance management and social relationships; Mack, Strong, Kowalski, & Crocker, 2006; McHugh et al., 2008; Sabiston, Sedgwick, Crocker, Kowalski, & Mack, 2007), which is a key feature of self-conscious emotions. Finally, manifestations of body-related emotion, such as social physique anxiety (Hart, Leary, & Rejeski, 1989), have been the focus of much sport and exercise psychology research. Nonetheless, body-related emotional experiences may not be expressed solely as anxiety, but also as shame, guilt, and pride (McHugh et al.; Sabiston et al.). It is important to advance research beyond the predominant focus on social physique anxiety to understand the realm of possible body-related emotional experiences (e.g., guilt, shame, pride), and the respective motivational and behavioral outcomes. To date, most body-related emotion-focused research has targeted negative emotions at the expense of also understanding the motivational role of the more positive emotional experiences.

Linking Emotion to Motivation and Behavior

According to Lazarus (1999), research exploring the relationships among positive and negative emotions and behavior must consider the underlying motivational mechanisms. Organismic integration theory (OIT; Deci & Ryan, 1985) is a sub-theory of self-determination theory (Deci & Ryan, 1985, 2002) which suggests that the quality, not quantity, of motivation underpinning self-regulation is integral to adaptive functioning. Accordingly, motivation is best understood as a continuum of regulations (or reasons to participate in physical activity) that differ on the degree of self-determination (i.e., the degree to which the behavior is undertaken volitionally such that the reasons motivating participation have been well internalized and integrated with the self; Deci & Ryan, 2002). These regulations range on a continuum of amotivation (i.e., no desire or intention to participate), external (i.e., participation to satisfy external demands), introjected (i.e., participation to avoid feeling guilt or to protect one's self-worth), identified and integrated (i.e., participation to obtain benefits that are deemed important and are in line with core values and beliefs), and intrinsic (i.e., participation results from an inherent enjoyment or interest in the activity) participation motives. Greater endorsements of the self-determined (e.g., identified, integrated, and intrinsic) regulations are positively linked to health behavior and psychological well-being (McDonough & Crocker, 2007; Pelletier & Dion, 2007; Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004; Thøgersen-Ntoumani & Ntoumanis, 2006, 2007; Wilson & Rodgers, 2004, 2007). A

meaningful extension to this literature would be to examine the associations among body-related self-conscious emotions, physical activity regulations, and behavior. Few reports have examined Lazarus's contention that motivation mediates the emotion—behavior link. Furthermore, combining constructs from different theories in an integrated approach may advance the understanding of affect and behavior (Hagger, 2009). In addition, drawing from recent work linking emotions and sport performance (Woodman, Davis, Hardy, Callow, Glasscock, & Yuill-Proctor, 2009), a focus on both positive and negative emotions may be informative in the context of physical activity.

Linking Body-Related Self-Conscious Emotions and Motivation

Proponents of OIT suggest that individuals construe social cues in different ways and these interpretations shape their regulations. One prominent social cue pertaining to women living in Westernized societies is the need to portray an ideal physique—including features of attractiveness, thinness, and muscle tone (Grogan, 2008). Falling short of these unrealistic standards may invoke negative emotions (e.g., guilt, shame), which in turn may induce external and introjected regulations (Deci & Ryan, 2002; Georgiadis, Biddle, & Chatzisarantis, 2001). In contrast, meeting such standards may lead to positive emotions (e.g., authentic and/or hubristic pride). Positive links have been documented between intrinsic and identified regulations and constructs with moderate-to-strong associations to pride, such as physical self-worth (Georgiadis et al.; Thøgersen-Ntoumani & Ntoumanis, 2006) and physical self-esteem (Wilson & Rodgers, 2002). Associations between negative emotions and the regulations have also been reported (Brunet & Sabiston, 2009; Gillison, Standage, & Skevington, 2006; Thøgersen-Ntoumani & Ntoumanis, 2006, 2007). For example, social physique anxiety has been negatively associated with the self-determined (identified and intrinsic) regulations and positively associated with non-self-determined (external and introjected) regulations (Gillison et al.; Thøgersen-Ntoumani & Ntoumanis, 2006). Similarly, Brunet and Sabiston indicated that social physique anxiety was negatively associated with self-determined regulations. Owing to these findings, it is important to extend this research by looking at how additional body-related emotions relate to physical activity regulations.

Study Objectives and Hypotheses

The purpose of this study was to test a model linking perceptions of body-related self-conscious emotions of guilt, shame, and pride directly to physical activity regulations, and the regulations directly to physical activity. A secondary aim was to compare this hypothesized model to a combined effects model including direct paths from the reports of body-related self-conscious emotions to physical activity. Based on previous conceptual and theoretical research (Deci & Ryan, 1985, 2002; Lazarus, 1999; Tracy & Robins, 2004), it was expected that reports of body-related emotions of shame and guilt would be differentially related to the physical activity regulations. Specifically, experiences of shame would be negatively tied to the most self-determined (i.e., identified regulation and intrinsic) regulations and positively associated with the least self-determined (i.e., external and introjected) regulations.

Given the reparative nature of guilt, it is likely that body-related guilt would be positively associated to regulations along the self-determination continuum. Body-related authentic pride was expected to demonstrate positive relationships to the most self-determined regulations and negative or no relationships with the least self-determined regulations. There were no hypotheses for hubristic pride given the lack of previous research on this construct. Amotivation and integrated regulation were not assessed in the current study. While there are measures to assess amotivation (Markland & Tobin, 2004), these subscale scores are usually skewed and show weak prediction of behavior (Markland & Tobin). Furthermore, amotivation is a construct that is assessed in sedentary samples and/or physical activity initiates, and is not of interest for the current study sample (Wilson, Rodgers, Loitz, & Scime, 2006). Integrated regulation is difficult to differentiate from identified regulation and therefore not often assessed (Markland & Tobin; Mullan, Markland, & Ingledew, 1997). There is a measure that may be appropriate to assess integrated regulation (Wilson et al.) in the context of OIT yet further instrument testing is required. If body-related guilt and shame were found to be highly correlated, a secondary hypothesis was offered to suggest that guilt-free shame and shame-free guilt would exhibit similar (possibly stronger) relationships to the physical activity regulations as those proposed for guilt and shame without the removal of shared variance. According to the OIT framework (Deci & Ryan) and Lazarus's contentions, the regulations would mediate the relationship between body-related self-conscious emotions and physical activity behavior.

Method

Procedures and Participants

Following the University Research Ethics Board approval, advertisements were posted in various community centers and around the university campus to recruit adult women as participants for the study. Information was also sent through various e-mail list servers, including workplace and university alumni. Interested participants were asked to contact the researchers for more information, to obtain consent forms, and to access the secured online questionnaire. Informed consent was sought online before the questionnaire could be completed.

Three hundred and eighty-nine women between the ages of 18 and 68 years ($M = 29.82$, $SD = 15.20$ years) completed the survey. Participants self-identified as Caucasian (84.30%), Asian (9.32%), Black (2.05%), Hispanic (2.71%), and First Nations/Aboriginal (1.62%). Women reported English (68.41%) and French (20.10%) as the predominant language spoken in the home, and over 60% of the sample reported household incomes less than \$50,000. The average body mass index was 24.15 ($SD = 5.11$, Range = 14.85–51.12) kg/m^2 .

Measures

Body-Related Self-Conscious Emotions. Guilt and shame were assessed using the Weight and Body-Related Shame and Guilt Scale (WEB-SG; Conrads et al., 2007). The WEB-SG is a 12-item measure consisting of 6 items assessing guilt (e.g., "When I can't manage to work out physically, I feel guilty") and 6 items

assessing shame (e.g., “I am ashamed of myself when others get to know how much I really weigh”). Item scoring ranged from 0 (*never*) to 4 (*always*). Previous evidence of internal consistency for the WEB-SG subscales include Cronbach’s alpha (α) coefficients ranging from 0.86 to 0.92 and convergent and discriminant validity for men and women (Conradt et al., 2007).

Body-related authentic pride was assessed using domain-specific items from the authentic pride subscale of the Pride Scale (Tracy & Robins, 2007b). Specifically, participants rated their level of authentic pride on 7 items (accomplished, successful, fulfilled, confident, productive, achieving, self-worth) using 5-point Likert scales ranging from 1 (*not at all*) to 5 (*extremely*). Tracy and Robins report an α -coefficient 0.88 for authentic pride.¹

Motivation. The Behavioral Regulation in Exercise Questionnaire (BREQ; Mullan et al., 1997) was used to assess motivation (i.e., the range of physical activity regulations). The BREQ is a 15-item inventory assessing extrinsic (4 items), introjected (3 items), identified (4 items), and intrinsic (4 items) regulations, where responses to each item are reported on a 5-point scale ranging from 0 (*not true for me*) to 4 (*very true for me*). Support for the reliability (e.g., α -coefficients ranging from 0.73 to 0.93) and validity of test scores derived from the BREQ in exercise and physical activity contexts has been demonstrated (Edmunds, Ntoumanis, & Duda, 2006; Standage, Sebire, & Loney, 2008; Thøgersen-Ntoumani & Ntoumanis, 2007; Wilson, Rodgers, & Fraser, 2002).

Physical Activity Behavior. The Leisure Time Exercise Questionnaire (LTEQ; Godin & Shephard, 1985) was used to assess physical activity behavior. Participants were asked to report the number of times per week they engaged in mild, moderate, and strenuous physical activity for more than 15 min. A total physical activity score was calculated by multiplying the weekly frequencies of mild, moderate, and strenuous activity by three, five, and nine, respectively, and summing the scores. A second item on the LTEQ asks about the frequency of regular activity during a typical 7-day period that results in a fast heartbeat and sweating, which is reported on a 3-point Likert-type scale ranging from 1 (*often*) to 3 (*never*). This item was reverse-scored.

Data Analysis

Means and standard deviations for all measured variables were examined using SPSS (Version 16.0). The hypothesized model was tested using standardized coefficients obtained from maximum likelihood structural equation modeling in Lisrel 8.80 (Jöreskog & Sörbom, 2007). Latent variables of the body-related emotions of pride, guilt, and shame and each of the external, introjected, identified, and intrinsic regulations were specified by their respective measured items. The two LTEQ items were indicators of a physical activity latent variable.

To test the main hypotheses, the data were analyzed in two main steps, including (i) the measurement model was tested using confirmatory factor analysis (Byrne, 1998); and (ii) the indirect and direct effects of self-conscious emotions and the physical activity regulations on women’s physical activity behavior were tested using structural equation modeling (Holmbeck, 1997). The hypothesized measurement model was specified whereby the indicators were uniquely loaded on appropriate

factors, the variance of each latent factor was fixed to 1.00 for identification, factors were allowed to correlate, and the measurement errors associated with the observed variables were not allowed to correlate. In the structural models, the first loading of each congeneric set of measures was set to 1.00 for identification. In line with OIT simplex modeling (Deci & Ryan, 1985), adjacent motivation regulations were specified to correlate. The body-related guilt, shame, and pride exogenous latent variables were also free to correlate.

Model goodness of fit (Hu & Bentler, 1999) was established by examining a range of indicators as recommended by Markland (2007): (a) Root Mean Square Error of Approximation (RMSEA; values ≤ 0.08); (b) Comparative Fit Index (CFI; values ≥ 0.90), and (c) Non-Normed Fit Index (NNFI; values ≥ 0.90). Chi-square statistic was used to test the improvements in fit. Changes in the CFI values less than or equal to 0.01 indicated no difference between the combined and indirect effects models (Cheung & Rensvold, 2002). As a further test of model fit, indirect and direct effects were examined in the beta and gamma matrices provided in the Lisrel output. In all analyses, critical *t* test values ($t \geq 1.96$ and/or $p \leq .05$) were used to determine statistical significance.

Results

Descriptive Statistics

Data were screened for accuracy and conformity with statistical assumptions. Nineteen individuals (from the original sample of 408 women) were excluded from the analyses because they did not provide demographic data ($n = 11$) or provided only demographic data with no other measures completed ($n = 8$). Based on multivariate analysis of variance findings, these individuals did not report significantly different ratings on any of the study variables. The remaining missing data ($\leq 3\%$) was deemed random, and were therefore replaced using an expectation maximization algorithm. See Table 1 for means, standard deviations, and α -coefficients.

Table 1 Internal Consistency (Cronbach's Alpha) Coefficients, Score Ranges, and Means and Standard Deviations for the Measured Study Variables

Variable	α	Score Range	Mean (SD)
1. Body-related shame	.88	1–5	2.89 (0.95)
2. Body-related guilt	.87	1–5	2.34 (0.92)
3. Body-related pride	.93	1–5	2.50 (0.93)
4. External regulation	.80	0–4	1.55 (0.62)
5. Introjected regulation	.81	0–4	2.38 (0.84)
6. Identified regulation	.81	0–4	3.20 (0.69)
7. Intrinsic regulation	.94	0–4	3.09 (0.86)
8. LTEQ1	—	0–115	34.13 (22.60)
9. LTEQ2	—	1–3	2.08 (0.68)

Note. All skewness values ranged from -0.77 to 0.94 ($SE = 0.12$) and kurtosis values ranged from -0.70 to 0.70 ($SE = 0.25$); LTEQ1 is the physical activity measure in METS; LTEQ2 is the frequency physical activity measure.

* $p < .05$, ** $p < .01$.

Main Analyses

All factor loadings between each indicator and latent variable were relatively high and statistically significant (83.70% of the loadings ≥ 0.70), with low (< 0.05) standard error variances, highlighting the structural validity and indicator reliability of the pride, guilt, shame, motivation, and physical activity latent variables. The proportion of explained variance in each indicator was also moderate-to-high ($R^2 = 0.45\text{--}0.88$), providing evidence of reliability. Correlations among latent factors are presented in Table 2. The fit statistics were: $\chi^2(566) = 1533.98, p < .01, RMSEA = 0.06, CFI = 0.96, NNFI = 0.96$ for the full measurement model.

The combined effects model was first tested in which body-related guilt, shame, and pride were hypothesized to relate to physical activity both directly and indirectly via the regulations. Goodness-of-fit statistics were: $\chi^2(569) = 1648.85, p < .01, RMSEA = 0.07, CFI = 0.96, NNFI = 0.95$. This model accounted for 13%, 61%, 27%, and 20% of the variance in external, introjected, identified, and intrinsic regulations, respectively. The direct paths between the body-related emotions and physical activity were not significant. Identified and intrinsic regulations were significantly associated with physical activity ($R^2 = 0.63$). In spite of the fit statistics, there was evidence of unexpected relationships in this model (see Figure 1). Inconsistent associations were observed between shame and introjected regulation and between guilt and intrinsic regulation when comparing the path coefficients from the structural model with the relationships observed in the measurement

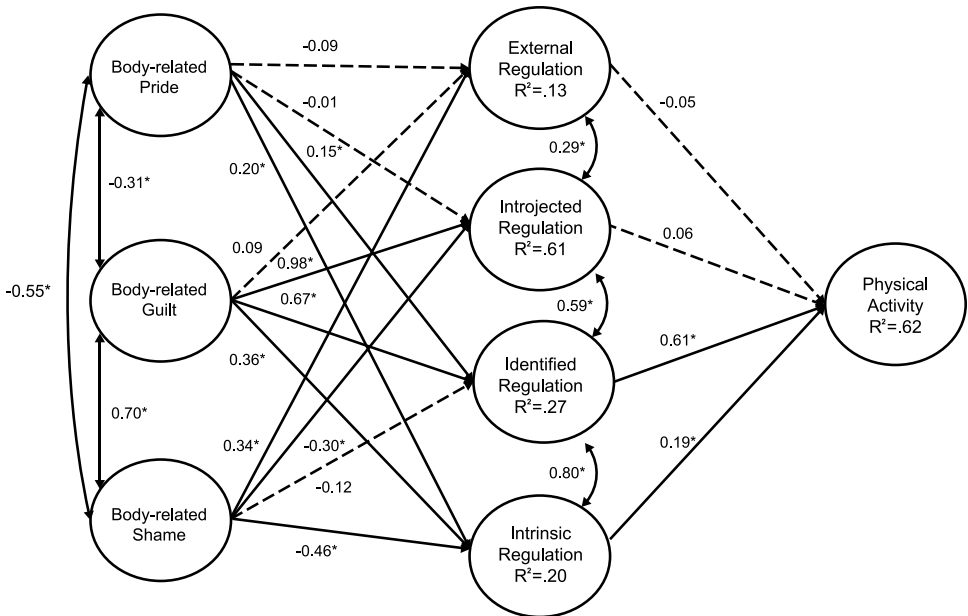


Figure 1 — Combined effects structural model depicting the relationships among the body-related self-conscious emotions, regulations, and physical activity behavior. The direct effects from pride, guilt, and shame to physical activity were not significant and are not illustrated. $*t > 1.96$.

Table 2 Latent Variable Correlations Among Physical Self-Conscious Emotions, Physical Activity Regulations, and Behavior

	1	2	3	4	5	6	7	8	9	10
1 Body-related pride	—									
2 Body-related guilt	-.31*	—								
3 Body-related shame	-.55*	.70*	—							
4 Body-related SFG	.05	—	—	—						
5 Body-related GFS	-.41*	—	—	-.64*	—					
6 External regulation	-.10	.30*	.34*	.28*	.22*	—				
7 Introjected regulation	-.05	.72*	.35*	.63*	.14*	.30*	—			
8 Identified regulation	.21*	.21*	-.10	.39*	-.24*	-.08	.59*	—		
9 Intrinsic regulation	.34*	-.07	-.30*	.09	-.36*	-.19*	.31*	.80*	—	
10 Physical activity	.27*	.09	-.23*	.32*	-.39*	-.14*	.39*	.78*	.71*	—

Note. SFG = shame-free Guilt, GFS = guilt-free shame.

* $t > 1.96$.

model (see Table 2 for the latent variable correlations). In an attempt to address these unexpected findings, a revised model replacing guilt with shame-free guilt and replacing shame with guilt-free shame was tested. Shame-free guilt was assessed as the standardized residual associated with predicting guilt from shame. Guilt-free shame was the standardized residual associated with predicting shame from guilt. The residuals were calculated and saved from a regression analysis using SPSS, imported into Lisrel, and integrated into the revised models as manifest variables.

To continue examining the main study hypotheses, the revised combined effects model ($\chi^2(276) = 777.64, p < .01, RMSEA = 0.07, CFI = 0.96, NNFI = 0.96$) accounted for variance in external ($R^2 = 0.14$), introjected ($R^2 = 0.53$), identified ($R^2 = 0.22$), and intrinsic ($R^2 = 0.17$) regulations. The direct paths between body-related shame-free guilt, guilt-free shame, and pride to physical activity were not significant (see Table 3). The hypothesized indirect effects (mediation) model was then tested using the shame-free guilt and guilt-free shame manifest variables, which accounted for 62% of the variance in physical activity, $\chi^2(279) = 781.24, p < .01, RMSEA = 0.07, CFI = 0.96, NNFI = 0.96$ (see Figure 2).²

Based on the chi-square difference ($\Delta\chi^2 = 3.60, p > .05$) for 3 *df* and equal CFI values across both models, the combined effects model was not a significantly better fitting model compared with the indirect effects (mediation) model. In addition, the stable fit indices (i.e., RMSEA, NNFI), small changes in the variance accounted for in physical activity, and observation of the indirect and direct effects (see Table

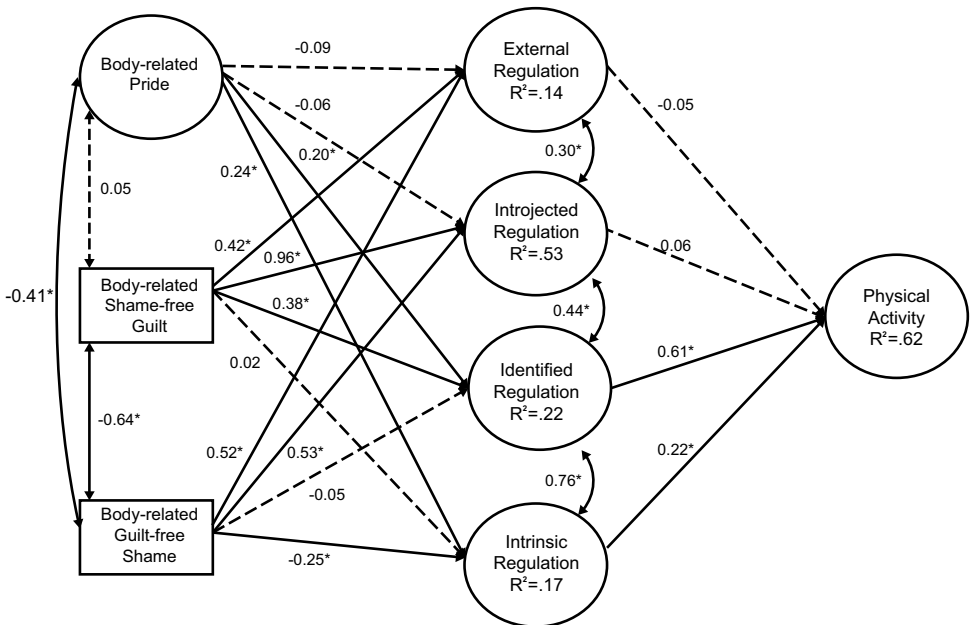


Figure 2 — Final indirect effects (mediation) structural model depicting the relationships between the body-related self-conscious emotions of pride, shame-free guilt, and guilt-free shame and physical activity regulations, and between the regulations and physical activity behavior. * $t > 1.96$.

Table 3 Direct and Indirect Effects of the Physical Self-Conscious Emotions of Shame, Shame-Free Guilt, and Pride on the Regulations on Physical Activity

	Unstandardized Parameter Estimates (Standard Error)		Standardized Parameter Estimates	
	Indirect effects	Direct effects	Indirect effects	Direct effects
Combined Effects Model				
Pride	3.05 (1.03)*	0.89 (1.20)	0.15*	0.06
Shame-free guilt	2.42 (1.31)*	0.42 (1.39)	0.17*	0.03
Guilt-free shame	-1.50 (1.04)	-1.10 (1.18)	-0.11	-0.08
External regulation	—	-0.52 (1.39)	—	-0.02
Introjected regulation	—	0.91 (1.99)	—	0.05
Identified regulation	—	19.30 (4.54)*	—	0.60*
Intrinsic regulation	—	2.99 (1.35)*	—	0.18*
Indirect Effects (Mediation) Model				
Pride	3.33 (1.03)*	—	0.16*	—
Shame-free guilt	2.71 (0.97)*	—	0.20*	—
Guilt-free shame	-1.68 (0.92)	—	-0.12	—
External regulation	—	-1.19 (1.35)	—	-0.05
Introjected regulation	—	0.32 (1.48)	—	0.06
Identified regulation	—	19.28 (4.49)*	—	0.61*
Intrinsic regulation	—	3.61 (1.80)*	—	0.22*

Note. **t* value ≥ 1.96 .

3), suggest little substantive gains with the combined effects model. Thus, the hypothesized indirect effects model (i.e., body-related self-conscious emotions linked to regulations and the regulations associated with physical activity) was supported by the data.

Discussion

Based on Lazarus's (1999) and Tracy and Robins's (2004) conjectures of emotion and OIT (Deci & Ryan, 1985, 2002), this study tested a model proposing body-related self-conscious emotions of pride, guilt, and shame are associated with women's physical activity via motivational regulations. The main hypotheses were supported in that body-related shame, guilt-free shame, guilt, shame-free guilt, and pride demonstrated unique relationships to the various physical activity regulations. A final model tested the hypothesized relationships among body-related shame-free guilt and guilt-free shame. Identified and intrinsic regulations were significantly related to physical activity. The findings demonstrate a range of body-related emotional experiences for women that may represent a "web of emotion," which is a concept offered to explain how young women report a variety of body-related experiences that are difficult to identify with one particular emotion (McHugh et al., 2008). McHugh et al.'s study highlights the importance of measuring a variety of both positive and negative emotions (e.g., shame, guilt, pride) to ensure that women's body-related experiences, or "web of emotion," are being captured. The current study illustrated that body-related shame, guilt, and pride have motivational salience with respect to physical activity participation. Other self-conscious emotions, such as embarrassment and envy in particular, may have further salience to women's experiences of emotions related to their bodies and represent important emotions that could motivate physical activity outcomes in distinct ways.

Body-Related Emotions and Physical Activity Regulations

External Regulation. In this study, body-related shame was a significant positive correlate of external regulation. This relationship is not surprising since body shame has been linked to weight-related issues (Gilbert, 2002). Individuals who endorse external regulation likely report engaging in the behavior because they are controlled by external forces and/or are motivated by rewards such as weight loss or social status (Wilson & Rodgers, 2007). Given that external regulation is negatively associated with health-enhancing behaviors such as physical activity (McDonough & Crocker, 2007; Standage et al., 2008; Wilson, Rodgers, Blanchard, & Gessell, 2003), it is important to reduce the endorsement of this regulation. Deci and Ryan (2002) propose that enhancing people's perceptions of competence, autonomy, and relatedness for physical activity may satisfy this objective. Based on the current findings, researchers may also want to develop interventions focused on reducing experience of body-related shame. Such interventions could include strategies aimed at reducing self-objectification (Fredrickson & Roberts, 1997). According to Tracy and Robins (2004), identity-goal relevance and congruence, as well as internal attributions, influence one's experience of shame. Thus, interventions could focus on manipulating these likely antecedents of body-related shame in attempt to reduce external regulations for physical activity. Since the current study did not

test causality among these factors, future research is needed to study the proposed directional associations before developing intervention strategies.

Introjected Regulation. In support of the hypothesis, guilt and shame (and shame-free guilt and guilt-free shame) body-related self-conscious emotions were positive correlates of introjected regulation. In all models, guilt was highly associated with introjected regulation for physical activity—an association inferring that these two variables were undifferentiated. Closer inspection of items comprising each scale demonstrated that both tap body-related internal pressures of guilt and shame and not other facets of introjected regulation such as ego and self-worth protection (Ryan & Deci, 2000). This may explain the redundancy of the factors in the model. Nonetheless, shame and guilt (and shame-free guilt and guilt-free shame) were expected positive correlates of introjected regulation given the significant relationships between other types of body-related negative affect, in the form of social physique anxiety, and external and introjected regulation (Brunet & Sabiston, 2009; Thøgersen-Ntoumani & Ntoumanis, 2006, 2007). While gender differences were not explored in the current study, previous research has shown that adolescent girls are more likely to report guilt as a motivating factor for exercise, whereas adolescent boys were more likely to report exercise as a context to achieve ego enhancement or a sense of pride (Gillison, Osborn, Standage, & Skevington, 2009). Comparable evidence across gender-specific subsamples has been reported in young adults whereby introjection is negatively associated with more frequent physical activity among males; yet females experiencing introjection report engaging in more frequent physical activity (Wilson, Rodgers, Fraser, & Murray, 2004). Future research should examine gender-related differences in the experience of body-related emotions and the associations to the physical activity regulations and behavior.

Identified and Intrinsic Regulation. As hypothesized, body-related pride and guilt (and shame-free guilt) were significant positive correlates of identified regulation. Pride was also significantly positively associated with intrinsic motivation. The positive associations between body-related pride and the more self-determined regulations suggest that these emotional experiences are incentives for individuals to pursue action and behavior in a valued domain (Williams & DeSteno, 2008). Specifically, the functional role of pride is acknowledged when this positive self-conscious emotion drives motivation toward goals that incur short-term costs (Bartlett & DeSteno, 2006; Williams & DeSteno). Drawing from this work, body-related pride may foster identified and intrinsic regulations because physical activity is known to have many short-term costs, such as sweating, physical pain, time constraints, and lack of enjoyment (Deforche, De Bourdeaudhuij, & Tanghe, 2006; Sherwood & Jeffery, 2000). Furthermore, it is suggested that authentic pride motivates long-term attainment and maintenance of behaviors that support social status (Tracy & Robins, 2007a). In the context of the physical domain, status may be associated with an identity of an exerciser or athlete because of the reported inherent health and wealth affiliations (Eagly et al., 1991). Thus, feelings of body-related pride may support inherent interest in physical activity and could be an important emotion to target in interventions aimed at enhancing physical activity enjoyment, value, and behavior. A promising route toward promoting authentic pride would be to focus on women's self-appraisals. Specifically, internal and unstable

attributions have been shown to influence authentic pride (M. Lewis, 2000; Tracy & Robins, 2004, 2007a), thus helping women attribute their successes to their personal characteristics and efforts may increase their feelings of pride.

Pride and guilt are reported to have similar action tendencies and functional outcomes (Barrett, 1995; Tracy & Robins, 2004), whereas shame and guilt have presented correlations in opposite directions across many domains (Tangney & Dearing, 2002; Tracy & Robins, 2006). The positive relationship between guilt, shame-free guilt, and identified regulation was therefore expected. While counter-intuitive at first, guilt is associated with reparative action (Tangney & Dearing) and it is likely that women who report higher experiences of body-related guilt may turn to a behavior such as physical activity to restore their sense of physical self or reduce the negative consequences of their actions and emotions. Nonetheless, these individuals do not endorse intrinsic regulation—suggesting that they engage in physical activity for reparative and moral reasons, but not because they enjoy and internalize the behavior.

Correlates of Physical Activity

Consistent with previous research, identified and intrinsic regulations were significantly associated with women's physical activity behavior. Identified regulation has been reportedly a stronger correlate of physical activity and exercise behavior compared with intrinsic regulation in previous studies (Edmunds et al., 2006; Wilson & Rodgers, 2004; Wilson et al., 2003, 2004). This growing consistency in the literature suggests that individuals need to value physical activity to engage in the behavior, yet enjoyment and pleasure may be more difficult to attain (see Ekkekakis & Petruzzello, 1999). Further complicating the issue, the link between specific regulations and physical activity are difficult to discern given the focus on global motivation, such as the Relative Autonomy Index, or on controlling and autonomous motivation, rather than the specific regulations. Researchers are encouraged to examine the unique associations between the regulations and behavior to inform intervention strategies and theoretical advancements. In a recent study (Standage et al., 2008), objective bouts of 10 and 20 min of moderate-intensity physical activity were correlated with identified and intrinsic regulations. Whereas the light and vigorous activity levels were not reported, this study alludes to possible unique associations between regulations and objectively assessed physical activity. More research is needed to understand the specific relationships among physical activity intensities and the range of regulations encompassing the OIT approach.

Limitations

There are several limitations of the current study. First, the study is based on data collected from a self-selected convenience sample of women and the generalizability of the findings is cautioned. Second, this study is cross-sectional by design and directionality of associations cannot be inferred. The relationships between body-related self-conscious emotions, regulations, and physical activity may be bidirectional, such that participating in physical activity could also elicit higher levels of body-related pride and lower experiences of shame and guilt, and in turn maintain one's self-determined regulations to be physically active. Longitudinal

designs would support examining the directionality of effects linking emotions, regulations, and behavior. Third, it should be noted that body-related pride was assessed using a different instrument than shame and guilt. The extent to which instrument-based differences impacted the findings in this study remains unclear at this juncture but warrants investigation. Finally, physical activity was assessed using a self-report measure. There may be added value of examining the associations among body-related emotions, regulations, and physical activity assessed objectively (e.g., accelerometers or pedometers) since self-report measures may be biased and inaccurate, and may not measure dimensions of physical activity known to relate to health outcomes (i.e., Schmidt, Cleland, Thomson, Dwyer, & Venn, 2008).

Conclusions

This study advanced the literature in three important ways. First, this study demonstrated support for integrating body-related self-conscious emotion and OIT constructs to account for moderate variance in physical activity in women—a population known to be less active and to experience greater physique concerns compared with men. Secondly, the study highlighted the importance of examining both positive and negative emotional experiences that extend beyond social physique anxiety. Finally, this study identified physical self-conscious emotions that are uniquely associated with physical activity motivation and behavior. Future research needs to expand on these relationships to explore other health behavior outcomes, in addition to examining additional body-related self-conscious emotions such as embarrassment and envy. More research is also necessary to explore the acute and chronic effects of body-related self-conscious emotions and the links to physical activity. Together, these efforts can advance conceptual frameworks linking the physical self and well-being.

Notes

1. We also measured body-related hubristic pride in both a pilot study and in the current study using the seven items identified by Tracy and Robins (2007b): snobbish, stuck-up, pompous, conceited, egotistical, arrogant, and smug. The internal consistency of hubristic pride using these items has been reported as acceptable ($\alpha = .90$; Tracy & Robins, 2007b). In the pilot study, participants (males: $n = 21$ and females: $n = 36$) were recruited around the university campus and asked to complete the modified pride scale (in addition to the WEB-SG). For authentic pride, the internal consistency was adequate ($\alpha = .90$) and all items were reported along the 1–5 response continuum. The internal consistency for hubristic pride was also acceptable ($\alpha = .70$); however, only the adjectives of *egotistical* and *arrogant* were even minimally endorsed ($M_{egotistical} = 1.61$, $SD = 0.88$, $M_{arrogant} = 1.33$, $SD = 0.69$). For conceited and smug, the majority of males and females reported “not at all” (66.7% and 94.4%, respectively), one male reported feeling a little stuckup, and no individuals endorsed snobbish or pompous. As a result of the pilot study, hubristic pride was assessed in the current study using only the egotistical and arrogant items ($\alpha = 0.70$); however, the composite of these two items was minimally endorsed ($M = 1.38$, $SD = 0.65$ on a 5-point scale). Less than 2% of the sample ($n = 7$) reported experiencing hubristic pride “quite a bit” or “extremely”, and it was not correlated to physical activity, any of the motivation regulations, or the guilt and shame physical self-conscious emotions. It did demonstrate a similar

relationship to physical self authentic pride ($r = .29$) as reported in previous research focused on global self-conscious emotions (Tracy & Robins, 2007a). Nonetheless, the lack of endorsement for this emotion and measurement concerns led us to exclude physical self hubristic pride from the current study. Since hubristic pride is defined as a general unconditional positive view of the self (Tracy & Robins, 2007a), it may be that hubristic pride can only be assessed at a more general level of self whereas authentic pride can be focused on specific attributes (Tracy & Robins, 2007b). This contention requires further research aimed at disentangling the dimensions of pride contextualized to the physical self.

2. We also tested alternative models of body-related pride, guilt, and shame being unique exogenous latent variables. These models were tested to examine the robustness of our findings given the moderate to high intercorrelations among the body-related emotions. Each model produced path coefficients of similar strength and direction to those presented in the revised model, with slightly lower variance accounted for in each regulation. The direct effects of the emotions on physical activity remained nonsignificant, and each model accounted for 61% of the variance in physical activity. These findings can be obtained from the first author.

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