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Midlife Women's Physical Activity Goals:
Sociocultural Influences and Effects on Behavioral Regulation

Abstract

A better understanding of midlife women's exercise goals could offer insight into the psychosocial facilitators and barriers to their participation. A random sample of U.S. working women (40-60 yr) was taken, and resulted in 262 participants. Cluster analysis identified participants' most important physical activity goal. A five goal cluster solution was identified: 1) Sense of Wellbeing; 2) Weight Loss; 3) Health Benefits; 4) Stress Reduction; and 5) Weight Maintenance/Toning. The goal cluster solution was validated and suggested relevant sociocultural influences and potential effects on behavioral regulation ($p < 0.05$). Data showed that weight- and health-related goals have sociocultural influences and are associated with more extrinsic and less intrinsic behavioral regulation compared to stress reduction and sense of wellbeing goals.

Key words: Physical activity; exercise; women; goals; behavioral regulation

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Introduction

Midlife women have an elevated risk of being sedentary compared to younger women and men (Scharff, Homan, Kreuter, & Brennan, 1999; U.S. Department of Health and Human Services, 1996). Being regularly physically active is associated with reduced risk of developing many chronic conditions (e.g., osteoporosis, diabetes, depression, cardiovascular disease) (U.S. Department of Health and Human Services, 1996, 2004). In order to understand how to most effectively promote physical activity, there have been calls to conduct research targeting gender and different life stages (Booth, Bauman, Owen, & Gore, 1997; Dishman, Sallis, & Orenstein, 1985; Marcus & Forsyth, 1998; Marcus, Dubbert, & Forsyth, 2000; Scharff et al., 1999; Trujillo, Brougham, & Walsh, 2004). This study investigates the physical activity goals of women in midlife.

Physical activity goals are important to research because behavioral goals, or the reasons for doing a particular behavior, are associated with motivation, self-regulation, and adherence (Bagozzi & Edwards, 2000; Carver & Scheier, 1998, 2000). This study is important because a better understanding of midlife women's physical activity goal content offers insight into the motivational facilitators and barriers to their participation, and potentially aid in the development of better promotion strategies for this population. The primary objective of this research was to expand previous research about the reasons why midlife women participate in physical activity (Segar, Spruijt-Metz, & Nolen-Hoeksema, 2006), and aimed to illuminate the specific content of the physical activity goals midlife women report having using cluster analysis. The secondary objective was to validate these clusters using variables that could highlight sociocultural influences on the content of midlife women's physical activity goals. We validated the clusters using variables reflecting norms and pressures related to beauty/thinness, such as self-

objectifying (Fredrickson & Roberts, 1997) and variables representing intrinsic and introjected behavioral regulation as discussed in Self-Determination Theory (Deci & Ryan, 1985).

Taylor, Bagozzi, Gaither, and Jamerson (2006) suggested that there is a deficit in the literature because most research on goal setting has investigated the *implications* of goal setting, rather than the *bases* of goal setting. We agree with this critique, but also believe that the effects of goals on behavior cannot be understood without examining how goal content has been influenced by the surrounding cultural context. Because behavioral goals are closely connected to cultural expectations (Coole, 1995; Eccles, 1994; Markus & Kitayama, 1991), it is important to contextualize the psychological meaning of physical activity goals within the sociocultural context. The specific physical activity goal that a woman has is likely influenced by the internalization of cultural norms and gendered pressures (Eccles, 1994; Henderson & Bialeschki, 1994; Markus & Kitayama, 1991).

Women report exercising in order to lose weight, shape their bodies, or improve their appearance more than men (Frederick & Ryan, 1993; McDonald & Thompson, 1992; Silberstein, Striegel-Moore, Timko, & Rodin, 1988; Tiggemann & Williamson, 2000). Physical activity goals related to appearance and body shape may be manifestations of women's internalization of sociocultural beauty norms and physical activity meanings portrayed in the media (Mutrie & Choi, 2000; Theberge, 1997) and reflect a woman's attempt to achieve her "ideal self," one that is culturally prescribed and internalized (Carver, 1996; Eccles, 1994). Objectification Theory and Self-Determination Theory provide frameworks to investigate how appearance and body-shape physical activity goals might detrimentally influence midlife women's behavioral regulation and motivation for being physically active.

Objectification Theory posits that women are socialized in our culture to consider themselves as objects that are evaluated on the basis of their appearance and to internalize an objectifying observer's perspective on their own body (Fredrickson & Roberts, 1997). Self-objectification (focusing on "How do I look?" to another person rather than a first-person perspective, for example, "How do I feel?") leads to habitual body surveillance.

Research on self-objectification has suggested that self-objectifying is associated with negative consequences for women, including negative affect, shame, less awareness of internal bodily states and decreased positive motivational states (Fredrickson & Roberts, 1997; Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998).

One study investigated the relationship between self-objectification and women's reasons for exercise. This study showed that self-objectification was positively associated with appearance motives for exercise among college-aged women (Strelan, Mehaffey, & Tiggemann, 2003). These authors also reported that women who rated appearance-related reasons for exercise as important (e.g., weight control, body tone, and attractiveness) experienced increased body dissatisfaction and reduced self-esteem. Generalizing from these data and Objectification Theory, a midlife woman with physical activity goals related to appearance and body-shaping would be likely to self-objectify, and potentially experience extrinsic behavioral regulation.

Sociocultural thinness and beauty norms and pressures provide the context for, and are a likely source of influence in women selecting physical activity goals related to appearance and/or shaping their bodies. Predominant images of physically active women in media target improvements in body shape and appearance that can be gained from exercising (Blaine & McElroy, 2002; Theberge, 1997). Thus, the media, and the sociocultural norms and pressures they depict, provide a context within which women develop their physical activity goals and behavioral regulation. Importantly, the context in which goals are set influences the type of behavioral regulation that develops (Ryan & Deci, 2002). According to Self-Determination Theory, when individuals take prompts from their environment and partially internalize them, they have an *introjected* form of behavioral regulation. This type of regulation is characterized by an individual feeling conflicted about the behavior (Skinner & Edge, 2002).

Introjected regulation represents the first stage of an internalization process; when an external regulation has been partially but not fully internalized by a individual and causes them to feel pressured to perform the behavior (Reeve, 2002). Behaviors that are introjected are performed to gain social approval or avoid disapproval, or to gain self-worth (Biddle & Mutrie,

2001; Ryan & Deci, 2000). Introjected regulation is characterized by the sentiment that 'I *should* exercise' (Ryan, Connell, & Grolnick, 1992), and is associated with decreased positive affect, intrinsic motivation, and adherence (Deci & Ryan, 1985; Frederick-Recascino, 2002). According to Self-Determination Theory, body-shape physical activity goals would be experienced as controlling rather than autonomous, and as a result, should undermine midlife women's behavioral regulation and motivation (Ryan et al., 1992). In contrast, autonomously-derived goals reflect a person's true sense of volition and personal importance. These goals are more likely to be intrinsically motivating and result in better behavioral participation (Ryan & Deci, 2000). Moreover, research has shown that when individuals imagine being physically active, imagery that is related to appearance is most strongly associated with introjected regulation, compared to the other types of regulation (Wilson, Rodgers, Hall, & Gamage, 2003). The ideas inherent in both Self-Determination and Objectification theories suggest that physical activity goals derived out of the internalization of sociocultural norms and pressures related to appearance and body shape would result in less than optimal motivation and behavioral regulation.

We hypothesize that: Compared to participants with non-body-shape goals, participants with physical activity goals related to appearance and weight (body-shape goals) will have: 1) more physical activity imagery related to body shape; 2) self-objectify more; 3) have higher introjected; and 4) lower intrinsic motivation.

Method

Sample and Procedure

The population of interest is midlife women who work full time. Women have less leisure time than men (Verhoef, 1992) and women over 50 have a substantial risk of being sedentary (U.S. Department of Health and Human Services, 1996). Women who work full time have added constraints on their ability to have leisure time, making it even more difficult to regularly participate in physical activity. Given that the majority of women work (United States Department of Labor, 2003), research is needed that identifies what helps and hinders them from

participating in sustained physical activity. A convenience sample was taken of the University of Michigan clerical staff to participate in a mailed survey. Inclusionary criteria were: Being between the ages of 40 and 60; working in full-time jobs that are administrative; having Internet access and an e-mail account. The age range of 40 to 60 was selected because it is considered to constitute the "core" of midlife (Keyes & Ryff, 1999).

Out of the sample population of 843 employees, a random sample of four hundred women (40-60 yr) was selected to participate in a mailed survey. Fifteen of the 400 were ineligible to participate because they had either taken the pilot survey, were administrators involved in the study, or were no longer employed by the university. The response rate for the survey was 71% (n = 275). Thirteen cases had incomplete data and were removed. This sample had 262 participants. However, four cases were removed prior to the analyses (i.e., two cases had incomplete data on the goal measure, and two cases were identified by the Sleipner program as multivariate outliers.) The subsequent cluster analyses were conducted on 258 cases. There were no demographic differences between survey responders and non-responders. See Table I for the sample demographics. The sample is mostly European American and married.

The University of Michigan Human Resource Department (UMHR) conducted a database query for staff who matched the study criteria listed above. The UMHR provided mailing labels and e-mail addresses from a random sample of those who matched study criteria to the principal investigator.

The potential participants received an e-mail one week before the survey was sent, informing them that they were selected to participate in a study and that an information packet with a survey would arrive soon. One week later, potential study participants received a survey. Participants not completing their survey received e-mail inquiries on days 7, 14, and 21. After that, these participants were considered non-responders. This study received Human Subjects approval from the University of Michigan Institutional Review Board.

Measures

Physical activity goals. The following eighteen goals were obtained from a comprehensive review of the literature: Stress reduction, weight maintenance, energy level, tone/shape body, sense of wellbeing, weight loss, social reasons, overall health benefits, flexibility, competition, disease prevention, family time, enjoyment, cardiovascular fitness, endurance/stamina, strength, fun, and other (Campbell, MacCauley, McCrum, & Evans, 2001; Cash, Novy, & Grant, 1994; Duda & Tappe, 1988; Finkenber, DiNucci, McCune, & McCune, 1994; Frederick & Morrison, 1996; Gill & Overdorf, 1994; Ryan, Frederick, Lipes, Rubio, & Sheldon, 1997; Trujillo et al., 2004).

To measure participants' physical activity goals, participants were asked to answer in stages. First, they were asked to review the list of goals and "Circle the reasons below that represent your three most *important* reasons for being physically active." Second, they were instructed to "Go back to the list, and underline the reasons that represent your three *least* important reasons for being physically active." Third, they were asked to "Review the three reasons you circled above as being most important to you for being physically active, and write the one that you consider to be *the most* important reason." Fourth, they were asked to "Review the three reasons you underlined as being least important to you for being physically active and write the one that you consider to be *the least* important reason" (Block, 1971; Kohn & Schooler, 1983). Each of the goal scores were then recoded into the following: -2 = "least important goal", -1 = "two second least important goals"; 0 = goal not mentioned, 1 = two second most important goals, and 2 = "most important goal."

Physical activity imagery. Physical activity imagery is the first of two variables that we used to measure sociocultural influences on goals. To avoid priming participants, early in the questionnaire, they were instructed to imagine being physically active for one to two minutes. An open-ended, inductive imagination task that elicits specific thoughts, feelings, associations and goals was used. This measure has been used previously and has predictive validity (Scioli, McClelland, Weaver, & Madden, 2000; Segar et al., 2006). Specifically, study participants were asked to "Take some time and imagine that you are being physically active right now. Please

close your eyes, and take a minute or two to go over that experience in your mind. After you do this, please write below 3-4 sentences describing what you were thinking about and what you were feeling when you were being physically active. If you prefer, you can also write phrases or just words to describe your thoughts and feelings.”

Physical Activity Imagery relates to what participants imagined during the above imagery activity. This variable was created by coding participants' narrative, described above, in addition to the following two questions: 1) “In the imagination task you just did, why were you being physically active?”; 2) “In the imagination task you just did, what would your reason(s) be for choosing to participate in that specific physical activity?” Participants were coded as having “body-shape” imagery if they wrote any of the following words (“shape”, “calories”, “toning”, and/or indicating that they wanted to lose or maintain their weight). Participants received a code of “body-shape” regardless of whether other goals were mentioned in addition to body shape goals. Participants not mentioning those words were coded as having “non-body-shape” imagery.

Self-objectification. The second variable that we used to measure sociocultural influences on goals, Self-objectification, was measured using the body surveillance subscale from the Objectified Body Consciousness Scale (McKinley, 1996). Participants were asked how much they agreed with eight statements (e.g., “During the day, I think about how I look many times”), on a seven-point Likert scale from (1) Strongly Disagree to (7) Strongly Agree. The Self-objectification scale was created by taking the mean of the items (including the one item that was reverse scored). The inter-item correlation of the eight-item scale in other research was reported to be 0.76 (McKinley, 1999). Scores ranged from 1 to 7, with an average of 4.4 (SD = 1.0). Inter-item reliability was adequate, $\alpha = 0.86$. A higher score indicates higher self-objectification (e.g., thinking about one's body more in terms of how it looks than how it feels).

Introjected Regulation. Participants answered questions related to behavioral regulation about the most important goal that they selected. To measure Introjected Regulation toward participants' most important physical activity goal, participants responded to “How important are each of the following two reasons regarding why you pursue this goal?” Possible responses

ranged from (1) Not At All Important to (7) Very Important to the following two questions: 1. I feel that I *should* pursue it; and 2. I would feel *guilty* if I didn't pursue it.

The Introjected Regulation scale for the most important physical activity goal was created by taking the mean of these two items. Scores ranged from 1 to 7, with an average of 5.2 (SD = 1.3). Inter-item reliability = 0.63. Higher scores indicate that participants had greater introjected motivation for pursuing their most important physical activity goal.

Intrinsic Regulation. To measure Intrinsic Regulation toward participants' most important physical activity goal, two items were used. Participants were asked: 1. How much do you "enjoy pursuing this goal?" Responses ranged from (1) Do not enjoy at all to (7) Enjoy a lot; and 2. How important is the following reason regarding why you pursue this goal? ("I *like* pursuing it.") Responses ranged from (1) Not At All Important to (7) Very Important.

The Intrinsic Regulation scale was created by averaging these two items. Scores ranged from 1 to 7, with an average of 4.8 (SD = 1.6). Inter-item reliability = 0.85. Higher scores indicate greater intrinsic regulation.

Analyses

Identifying homogeneous subgroups using cluster analysis. Cluster analysis permitted us to create comprehensive and in-depth motivational profiles based on the specific set of personal goals that were both important and unimportant to participants for their activity profiles. Cluster analysis was used to identify patterns of physical activity goals using the Sleipner statistical package (version 2.1) for pattern-oriented analyses (Bergman & El-Khoury, 2002). Using the Sleipner Residan procedure, a small percentage of multivariate outliers were identified and removed prior to the cluster analysis. (The two cases removed exhibit profile patterns that were unique and unlikely to belong to any of the homogeneous subgroups identified using cluster analysis.)

We then used Ward's method (with squared Euclidean distances as the dissimilarity measures) to generate 20 possible cluster solutions (Bergman, Magnusson, & El-Khoury, 2003; Everitt, Landau, & Lesse, 2001). There was a fusion (i.e., "agglomeration") coefficient

associated with each of the 20 possible cluster solutions, and we arranged these coefficients in a scree-type plot to determine the upper and lower bounds of statistically-justifiable cluster solution complexity (which ranged from 3 to 5 cluster groups) As described below, we selected an optimal cluster solution by reference to both differences in the explained error sum of squares between solutions and theoretical considerations. After selecting our preferred solution, we conducted a *k*-means cluster relocation analysis (which used the results of the Ward's method analysis as start values) that resulted in 27 cases being re-assigned to cluster groups that better matched their profile. This step corrects for early misclassifications in the strictly hierarchical procedure of Ward's method and maximizes within-group homogeneity.

All of the goals mentioned above, except for "competition" and those that were handwritten in as "other" goals, were used in the cluster analyses. Competition was excluded because it appeared to be irrelevant compared to the other goals as a physical activity goal for midlife women; that is, over 85% of study participants endorsed it as one of their *least* important reasons for being physically active, and there was no variance across preliminary cluster solutions that included this variable. The cluster analyses were conducted using the remaining 16 goals.

Validation of cluster solution. It is important to validate a cluster solution by showing that groups differ in predictive ways (Aldenderfer & Blashfield, 1984). This can be done by demonstrating meaningful variability between clusters using variables that are directly related to the cluster group patterns but not the same variables that were used to create the cluster solution (Bergman et al., 2003; Everitt et al., 2001; Nelson, Gordon-Larsen, Adair, & Popkin, 2005; Reedy, Haines, & Campbell, 2005). ANOVAs, Chi-square analyses, and *t* tests were conducted to validate the cluster group membership. Post hoc analyses were conducted using the least significant difference (LSD) procedure. Effect sizes for the analyses were calculated according to recommendations (Polit & Sherman, 1990; Cohen, 1988).

Results

Physical Activity Goal Cluster Solution

A final five-cluster solution was retained based on the interpretability of the profile patterns and evidence from the scree-type plot showing minimal gains in explained variance between cluster groups for higher-level solutions. Please see Figure 1 for a graphical depiction of the five-cluster solution. As can be seen in Figure 1, the five cluster group patterns was marked by a dominant goal and was named *according to* these marker variables. Some of the clusters can also be identified by the *least* important goals. It should be noted that “Being Social” is a dominant *least* important goal in all of the cluster groups and thus will not be included in the cluster definitions below. “Being Social” was not removed from the cluster analysis, as was “Competition”, because, although it was a dominant least important motive, it was not endorsed by the majority of the sample (44%) compared to “Competition” (85%). The order of the goal clusters follows the order seen in Figure 1. The *Sense of Wellbeing* cluster is characterized by participants endorsing one goal, “Sense of Wellbeing” (n = 31, 12%). This goal cluster also has “Family Time” as the least important exercise goal. The *Weight Loss* cluster is characterized by participants scoring high on the “Weight Loss” goal (n = 55, 21%) and having both “Fun” and “Enjoyment” as dominant *least* important physical activity goals. Participants in the *Stress Reduction* cluster rated “Stress Reduction” as their most important goal (n = 37, 14%) and “Weight Loss” as a *least* important physical activity goal. The majority of participants endorsed health reasons. Participants in the *Health Benefits* cluster (n = 106, 40%) listed “Health Benefits” as their most important physical activity goal and “weight loss” as their second most important goal. Participants in the *Weight Maintenance/Toning* cluster (n = 29, 11%) endorsed “Weight Maintenance” and “Toning” equally as the most important goals, and endorsed “Health Benefits” as a secondary goal for participating. They rated “Fun” as a *least* important goal for being physically active. In summary, the majority of participants (61%) reported that their most important goal for being physically active was to lose weight or to obtain health benefits.

Differences in demographics between cluster groups were investigated using chi-square tests and one-way ANOVAs for categorical and continuous variables, respectively. Members of different goal clusters did not vary on age ($F [4, 250] = 1.4, p = .25$), education level ($\chi^2 = 22.4,$

df = 1, $p = .13$), marital status ($\chi^2 = 13.9$, df = 1, $p = .84$), or ethnicity ($\chi^2 = 8.6$, df = 1, $p = .93$). These null findings are not surprising given the homogeneity of the population from which the sample was drawn. Members of different goal clusters did differ significantly on the BMI ($F [4, 249] = 6.5$, $p < .001$), with a large effect size = 0.41 (Cohen, 1977). *Weight Loss* participants had a mean BMI of 31.4 (SD = 6.7), *Health Benefits* participants had a mean BMI of 29.0 (SD = 6.9), *Sense of Wellbeing* participants had a mean BMI of 26.9 (SD = 4.0), *Weight Maintenance/Toning* participants had a mean BMI of 26.4 (SD = 5.2), and *Stress Reduction* participants had a mean BMI of 25.5 (SD = 6.0). Participants in the *Weight Loss* cluster were heavier than all of the other participants, $p < 0.01$. Participants in the *Health Benefits* cluster weighted significantly more than those in *Stress Reduction* and *Weight Maintenance/Toning*, $p < .05$, and marginally more than those in the *Sense of Wellbeing* cluster, $p < 0.10$.

Sociocultural Influences on Goal Content

Physical activity imagery. To investigate the association between Physical Activity Imagery and goal clusters, the clusters were divided into the two groups: 1) Body-shape clusters (*Weight Loss* and *Weight Maintenance/Toning*) and 2) Non-body-shape clusters (*Stress Reduction*, *Sense of Wellbeing*, *Health Benefits*). Because four participants did not fill out the imagery task, the following analysis was conducted using 254 participants. A chi-square analysis showed a significant association between these goal clusters groupings and having body-shape imagery for being physically active from the imagination task ($\chi^2 = 14.9$, df = 1, $p = .000$), with a 0.24 effect, which would be considered between a small and medium effect size (Cohen, 1988). See Table II for a summary of the findings. Only 22% of the non-body-shape cluster participants ($n = 37$) reported body-shape imagery compared to 45% of the body-shape cluster participants ($n = 38$). As predicted in hypothesis #1, the standardized residual of -3.9 indicates that a much smaller percentage of non-body-shape goal cluster participants had body-shape imagery than would be expected by chance. In addition, seventy-eight percent of the non-body-shape cluster participants ($n = 133$) had non-body-shape imagery compared to only 55% of the body-shape cluster participants ($n = 46$). The standardized residual of 3.9 indicates that a much larger

percentage of non-body-shape cluster participants had non-body-shape imagery than would be expected by chance. It should be noted that, despite these significant findings, the majority of the body-shape cluster participants (55%) reported non-body-shape imagery.

Self-objectification. To investigate Self-objectification, the goal clusters were divided into the same cluster groupings as previously described (e.g., Body-shape goals (*Weight Loss* and *Weight Maintenance/Toning*) and Non-body-shape goals (*Stress Reduction*, *Sense of Wellbeing*, *Health Benefits*)). An independent *t* test showed a significant relationship with Self-objectification, $t(256) = 2.9, p = 0.004$, with a small to medium effect size = 0.40 (Cohen, 1977). As predicted in hypothesis #2, the Body-shape cluster group scored higher on Self-objectification (4.8; SD = 1.0) compared to the Non-body-shape cluster group (4.4; SD = 1.0).

Behavioral Regulation

Introjected Regulation. An analysis of variance showed a significant relationship between the five-category goal cluster variable and Introjected Regulation, $F(4, 251) = 5.0, p = 0.001$, and between a medium to large effect size = 0.36 (Cohen, 1977). Partially supporting hypothesis #3, post hoc analyses showed that the *Weight Maintenance/Toning* (5.6, SD = 1.1), *Weight Loss* (5.5, SD = 1.1), *Health Benefits* (5.4, SD = 1.1) cluster members scored significantly higher on Introjected Regulation than those in the *Stress Reduction* (4.9, SD = 1.7) and *Sense of Wellbeing* (4.5, SD = 1.5) clusters, $p < 0.05$.

Intrinsic Regulation. An analysis of variance showed a significant relationship between the five-category goal cluster variable and Intrinsic Regulation, $F(4, 252) = 12.1, p = 0.001$, and a large effect size = 0.51 (Cohen, 1977). Partially supporting hypothesis #4, post hoc analyses showed that the participants in the *Weight Loss* cluster (3.6, SD = 1.6) scored significantly lower on Intrinsic Regulation than participants in all other clusters, $p < 0.01$). *Weight Maintenance/Toning* cluster group participants (4.7, SD = 1.3) scored significantly lower on Intrinsic Regulation than those in the *Stress Reduction* cluster (5.5, SD = 1.4), $p < 0.05$, and marginally lower than those in the *Sense of Wellbeing* cluster (5.4, SD = 1.4), $p < 0.10$. In

addition, the *Health Benefits* cluster members (4.9, SD = 1.5) scored marginally lower on Intrinsic Regulation than those in the *Sense of Wellbeing* and *Stress Reduction* clusters, $p < 0.10$.

Discussion

The aims of this study were to expand previous research on midlife women's reasons for being physically active (Segar et al., 2006) by investigating (a) the specific content of midlife women's most important goals for being physically active; and (b) to validate the clusters using variables that highlight relevant sociocultural beauty/thinness norms and pressures that influence women's physical activity goal selection and those that indicate intrinsic and introjected behavioral regulation.

Physical Activity Goal Prevalence Rates

We identified five distinct clusters related to midlife women's most important goals for being physically active. It is interesting to note that only 5 dominant goal clusters emerged when there were 16 goals listed. This suggests that midlife women think about being physically active, in general, for a handful of reasons.

Almost one third of this sample reported being physically active to pursue goals related to body- and weight-related concerns. While 33% represents a significant endorsement of body-shape reasons for physical activity, it is lower than typically seen in samples of college-age women (Strelan et al., 2003; Tiggemann & Williamson, 2000).

Having body-shape and/or appearance motives for physical activity might decline across the lifespan. Although women experience pressure from cultural beauty/thinness norms that result in body dissatisfaction throughout the lifespan (Tiggemann, 2004; Tiggemann & Lynch, 2001), the importance that women place on their body dissatisfaction, and its influence on *why* they exercise may decrease with age (Tiggemann 2004). Developmental perspectives on physical activity suggest that individuals in different life stages have distinct priorities and responsibilities that will be reflected in different reasons for being physically active (Trujillo et al., 2004). Compared to midlife women, most of whom are married and have families, college-age women are in a life stage where they are searching for a mate. These distinct life stages might make

weight and appearance physical activity goals more salient for younger women than those in midlife.

Health Benefits was endorsed by the most participants (40%). This is not surprising because health is highly endorsed as a motive for participation across age groups (Trujillo et al., 2004). Endorsing *Health Benefits* might represent a response influenced by a social desirability bias because “doing healthy things” could be considered a normative pressure in our culture. How individuals construe behavior is shaped in large part by what is learned from the professionals in the field and culture (Leventhal, Leventhal, & Contrada, 1998; Rothman, Kelly, Hertel, & Salovey, 2003). Individuals often view doing things that their healthcare providers recommend to be healthy as something they are “supposed to” or “should” do (Williams, 2002). These sentiments reflect an introjected form of behavioral regulation whereby the individual acts to gain social approval, avoid social disapproval, or gain self-worth (Frederick-Recascino, 2002). Not surprisingly, introjected regulation leads individuals to feel conflicted about doing the behavior, and is considered to be a regular occurrence in healthcare (Williams, 2002). Our data support this idea by showing that the participants in the *Health Benefits* cluster scored high on introjected regulation.

Despite the known mental health benefits from regular physical activity (U.S. Department of Health and Human Services, 1996), only 26% of these participants are physically active for goals related to improving mental health and mood. It may be that most midlife women do not experience being physically active in a way that would improve their stress levels or sense of wellbeing. Physical activity and exercise have been marketed with a weight-centered and appearance-oriented focus to women (Blaine & McElroy, 2002; Theberge, 1997), and may influence women self-objectifying *while* exercising (Wolfe, 1999). Because self-objectifying results in body vigilance, self-consciousness, and negatively influences mood (Fredrickson & Roberts, 1997; Roberts, 2002), being physically active might not be a positive mental health experience for women who self-objectify while being active. This might be especially true for

women who exercise with weight-related goals because our data suggest these women self-objectify more than those who have goals that are not related to weight and toning.

In addition, many midlife women might not be aware that being physically active can have mental health benefits. Given the way exercise has been marketed to women, a woman who is *not* physically active might not know that regular participation can result in enhanced feelings of wellbeing or improved mental health. This idea is supported by study findings showing that exercise was used as a mood enhancer *only by* individuals who were regular, experienced exercisers, and not those who were not regular participants (Hsiao & Thayer, 1998).

Another interesting thing to note is that these participants ranked “being social” and “family time” as *least* important goals for being physical activity. This lack of association between others/family and physical activity among this sample is important to note. Midlife women might not have this socially-oriented motivation for being physically active because they were socialized before Title IX in 1972. Because of this, midlife women grew up before gender equity in sports was mandated by law, and many did not have opportunities to participate in team sports (Lutter, 1994). Furthermore, because they were socialized before Title IX, much of midlife women's socialization to being physically active may have been from marketing that promotes exercise as a vehicle for an *individual* woman to lose weight and sculpt her body (Theberge, 1997). Both of these reasons might contribute to midlife women not having developed a socially-oriented attitude toward being physically active. Research has also shown that, among midlife adults, relationships are primary for enjoying life (Brim et al., 2004). Therefore, if physical activity is not related to aspects of their social and/or family life, midlife women may be less likely to participate. The commercial success of Curves® may be related to the social benefits it provides to its female patrons (Curves, 2006).

It is important to note that no clusters emerged that represented the enjoyment of being physically active in this sample of midlife women. This means that there were not a sufficient number of participants who endorsed enjoyment as an important reason for being physically active for a cluster to develop. It may be that many midlife women do not enjoy being physically

active. For an individual who is middle aged, overweight, and infrequently active, when they are physically active, especially at higher intensities, it might be physically unpleasant and frustrating, rather than mood enhancing and enjoyable (Ekkekakis & Lind, 2006). The lack of enjoyment of physical activity as a reason for doing it is important to note because *long-term* participation is thought to be related to enjoying physical activity (Biddle & Mutrie, 2001; Buckworth, 2000; Ingledeu, Markland, & Medley, 1998; Ryan et al., 1997; Salmon, Owen, Crawford, Bauman, & Sallis, 2003). Our data suggest that sense of wellbeing and stress reduction may be more relevant than enjoyment as intrinsic motives for midlife women.

Goal Validation: Sociocultural Influences and Effects on Behavioral Regulation

These results support the validity of the goal cluster groupings. In addition, as hypothesized, these data suggest that participants with body-shape goals have more greatly internalized cultural norms related to appearance and exercising than those with non-body-shape goals, supporting the notion that there are sociocultural influences on midlife women's physical activity goal content. In addition, these findings suggest that distinct physical activity goals are associated with different types of behavioral regulation among midlife women.

Our findings suggest that midlife women with body-shape physical activity goals were influenced to have these particular goals by the surrounding sociocultural context. These particular participants reported having more imagery related to appearance and body shape and self-objectified more than the participants with goals that were not related to appearance and body shape. This study is the first research we know of to suggest that there is an association between self-objectification and body-shape physical activity goals among midlife women. Our data support other research on college-age women, and a mixed sample of males and females (ages 18 – 35) showing that self-objectification was positively associated with exercising for appearance reasons (Strenlan, et al., 2003). These findings support our contention that self-objectification is associated with women exercising for body-shaping reasons, and suggest that this relationship exists at different life stages for women.

Having physical activity goals that are associated with self-objectification might be problematic because of potentially negative consequences for motivation and behavioral regulation. Self-Determination Theory, broadly, distinguishes between extrinsic and intrinsic motivation and types of regulation (Ryan & Deci, 2000). Intrinsic regulation is an autonomous experience and represents the state of doing an activity out of interest or inherent satisfaction. According to Self-Determination Theory there are distinct types of extrinsic regulation. However, because this study was specifically interested in the effects of internalizing sociocultural norms on midlife women's physical activity goal development, we focused on the introjected form of extrinsic regulation; a *partially*-internalized, *self*-enforced, and coercive-type of extrinsic regulation that leads women to feel like they "should" be physically active. We contend that women whose physical activity goals are influenced by sociocultural norms and pressures (e.g., weight and appearance related) should have high introjected regulation. Our data showed that participants with weight-related physical activity goals exhibited the highest introjected and the lowest intrinsic regulation levels. This is not surprising because these participants also endorsed enjoyment and/or fun as *least* important reasons for being physically active. Thus, participants with weight-related physical activity goals were more likely to feel that they *should* pursue their physical activity goal rather than *enjoy* pursuing it, compared to participants with goals that are more autonomous (e.g., stress reduction or sense of wellbeing). These results had medium to large effect sizes, and indicate robust relationships between the type of physical activity goal one has and their behavioral regulation.

Contrary to our predictions, these data showed that the participants in the *Health Benefits* cluster scored equally high on introjected regulation as did those in the *Weight Loss* and *Weight Maintenance/Toning* clusters. Introjected regulation can lead people to try to coerce themselves to perform a behavior, often through guilt, shame, and internal pressure (Vallerand & Ratelle, 2002). These findings suggest that being physically active for body-shape *or* health motives might be experienced by midlife women as being coercive, something that they "should" or "ought" to do (Carver & Scheier, 1998; Ryan & Connell, 1989). It is interesting to note that

Weight Maintenance/Toning cluster members reported the highest level of introjected regulation. Because their cluster profile suggests that health might be a secondary reason for their physical activity, these participants might experience introjected regulation related to *both* their body-shape and health-related goals. These data are in line with Self-Determination Theory's contention that the social environment influences the types of goals and behavioral regulation that individuals develop (Deci & Ryan, 2000).

Feelings of pressure can derive from distinct sources; cultural ideals and a healthcare practitioner's behavior change recommendation. In line with national statistics (Hill, 2005), most of these midlife participants were overweight or obese. Given that most midlife women in the United States are overweight or obese, midlife women might feel pressured by their healthcare providers to exercise for weight control or health motives. Thus, midlife women may be especially vulnerable to feeling coerced to exercise, and as a result, experience high levels of introjected regulation.

We measured women's explicit, and not their implicit, goals and processes in this study. However, women might not be conscious that their physical activity goals and motivations for participating in physical activity *are influenced by* sociocultural gender norms and culturally-prescribed physical activity motives because non-conscious goals affect behavior without the individual's conscious awareness (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Henderson & Bialeschki, 1994). Socialization is an implicit process that frequently occurs outside of awareness (Coole, 1995; Forgas, 1981; Markus, Kitayama, & Heiman, 1996; Mead, 1934). Given that women's socialization about being physically active might be to some extent outside of their awareness (Forgas, 1981), promotion efforts to increase physical activity in midlife women may obtain better long-term results if these efforts specifically address *how* midlife women have been socialized to think about physical activity and *why* they should participate in it..

These data suggest that social marketing campaigns and behavioral interventions might better facilitate increased physical activity among midlife women if they address and

acknowledge the internalization of cultural norms and pressures (e.g., beauty/thinness and practicing health behaviors) as they *impact* midlife women's relationship with (e.g., introjected regulation) and specific goals for being physically active. This suggestion seems especially relevant given that the majority of this sample reported having goals related to weight or health. This line of reasoning has been supported by longitudinal data from a physical activity intervention targeting midlife women. This six-week, community-based program raised participants' awareness to how they were socialized regarding exercise and physical activity, especially as it influenced their reasons and goals for participating in physical activity. Compared to their pre-program participation level (e.g., baseline), program participants were more physically active at the post-program data collection (six weeks), which was maintained at the study follow-up (average 10 months post-program) (Segar, Jayaratne, Hanlon, & Richardson, 2002). That these participants *maintained* their higher physical activity level at the study follow-up is notable because most physical activity intervention effects do not last beyond the end of the intervention (Baranowski, Anderson, & Carmack, 1998; Buckworth, 2000).

Study Strengths and Limitations

The sample size and response rate are strengths of this study. Data were analyzed from participants who constitute an under-researched subpopulation. This study used person-centered methods to identify the content of midlife women's goals for being physically active. We triangulated the data by using inductive and deductive methods, and quantitative and qualitative measures to measure the variables in this study. Triangulation is thought to offer a more comprehensive view of the phenomena under study (Biddle, Markland, Glibourne, Chatzisarantis, & Sparkes, 2001; Patton, 1990).

These data are correlational and the causal inferences that we suggest are tentative, and need to be studied further using a longitudinal design. In particular, the idea that having physical activity goals related to health is associated with introjected regulation needs to be studied further. In addition, the findings cannot be generalized outside of this sample of mostly European American and university clerical staff who work full time in a Midwestern university.

It is important to replicate this goal cluster solution among a similar sample, and to investigate the potentially different physical activity goals cluster solutions that women of distinct ethnicities, socio-economic statuses, and sexual orientations have.

Summary and Conclusion

These participants reported being physically active for mainly health and weight reduction goals. These data suggested that health- and weight-related physical activity goals are more related to social norms and associated with less optimal behavioral regulation compared to goals related to sense of wellbeing and stress reduction. These findings are important to consider because there is a body of research suggesting that autonomous regulations, intrinsic motivation and persistence in physical activity behavior may be *undermined* when women initiate physical activity out of compliance to sociocultural norms and pressures (Deci & Ryan, 2000; Eccles, 2005; Segar et al., 2006).

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Table I. *Baseline Sample Demographics*

Factors	Percent				
Total Sample	N = 275				
Age	49.9, SD = 5.4				
BMI	28.0, SD = 6.4				
Education					
High School or GED	Some College	Technical College	College Degree	Grad/Prof Degree	Missing
10.5%	38.0%	5.5%	36.4%	9.1%	0.4%
Marital Status					
Married	Living with partner	Separated	Divorced	Widowed	Single
62.5%	4.4%	1.1%	20.0%	2.2%	9.8%
Household Income					
< \$20,000	\$20,000-\$60,000	\$60,001-\$100,000	\$100,001-\$124,999	\$125,000+	Missing
0.7%	38.5%	38.9%	10.5%	6.9%	4.4%
Ethnicity					
African American	Asian	European Amer.	Latina	Mixed ethnicities	Missing
5.1%	2.2%	89.5%	1.1%	1.5%	0.7%

Table II. *Body-shape Clusters vs. Non-body-shape Clusters on Imagined Physical Activity*

Goal Clusters	Imagined Physical activity		
	Non-body-shape	Body-shape	Total
Non-body-shape	N = 133	N = 37	N = 170
Row %	78.2%	21.8%	
Column %	74.3%	49.3%	
Total %	52.4%	14.6%	
Adjusted residual	3.9	-3.9	
Body-shape	N = 46	N = 38	N = 84
Row %	54.8%	45.2%	
Column %	25.7%	50.7%	
Total %	18.1%	15.0%	
Adjusted residual	-3.9	3.9	
Total	179	75	254

Figure 1. Caption

The variables we used to cluster are on the upper right hand corner of Figure 1. The names of each cluster are on the x-axis and the mean levels of the variables used to create the clusters are along the y-axis. As can be seen, each cluster profile has a subset of variables that distinguish it from the others. The label we gave each cluster is reflective of the meaning of the profile of each cluster group. For example, the "Sense of Wellbeing" cluster is clearly reflective of the fact that it has a very dominant goal, sense of wellbeing. In contrast to the other goal clusters, the fifth cluster depicted "Weight Maintenance/Toning" has two dominant goals, weight maintenance and toning. Thus, this cluster's name reflects the fact that there are two dominant goals and not one as is the case with the other clusters.

Figure 1. Physical Activity Goal Cluster Solution

