

SELF-PRESENTATION IN EXERCISE SETTINGS AMONG OLDER WOMEN

A STUDY OF SELF-PRESENTATIONAL VARIABLES IN EXERCISE SETTINGS
AMONG OLDER WOMEN

By
ADRIENNE R. SINDEN, B.Sc.

A Thesis
Submitted to the School of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree
Master of Science

McMaster University

©Copyright by Adrienne R. Sinden, August 2001

MASTER OF SCIENCE (2001)
(Human Biodynamics)

McMaster University
Hamilton, Ontario

TITLE: A Study of Self-Presentational Variables in Exercise Settings Among Older Women

AUTHOR: Adrienne R. Sinden, B.Sc. (McMaster University)

SUPERVISOR: Professor Kathleen A. Martin

NUMBER OF PAGES: xii, 146

Abstract

Self-presentation (SP) is the process individuals use to control the perceptions others have of them (Leary, 1995; Leary & Kowalski, 1990). Research suggests that self-presentation plays a role in older adults' exercise participation and beliefs about the appropriateness of exercise and exercise clothing for older people (Martin et al., 2000). The purpose of this thesis was to evaluate how SP variables relate to exercise-related attitudes, motives, and the exercise environment among older women.

Study 1 evaluated the reliability and validity of measures of physical self-perceptions and exercise motives ($N = 40$; M age = 68.22). The Social Physique Anxiety Scale (Hart et al., 1989) and the Reasons for Exercise Inventory (Silberstein, et al., 1988) were found to be reliable and valid when used in a sample of older women. In addition, while fitness motives were of primary importance to older women, self-presentational concerns (i.e., social physique anxiety [SPA]) were related to self-presentational motives for exercise suggesting that for some women, SP is an issue in exercise contexts.

In Study 2, the moderating effects of SPA and physical activity (PA) on attitude towards different exercise environments were examined. Overall, women's ($N = 81$; M age = 70.85 years) attitudes toward conservative and revealing exercise attire environments were not significantly different. However, PA level, but not SPA, moderated their preferences such that for the revealing attire condition, as PA decreased, attitudes toward the exercise setting also decreased. As well, women's confidence in their ability to present themselves as exercisers (i.e., self-presentational efficacy, SPE) was not

differentially affected across the two video conditions. However, SPA, but not PA level, moderated the effect of the videos on SPE such that for the revealing condition, as SPA increased, SPE decreased. Taken together, this research has expanded our knowledge concerning the role that self-presentation plays in exercise settings among older women. Furthermore, consideration of the exercise environment, self-presentational concerns, and physical activity level is recommended when developing exercise programs that older women will feel comfortable initiating and maintaining throughout their years.

Acknowledgements

Reflecting upon this thesis, from conception to completion, I'm reminded of the expression "It takes a village to raise a child." This thesis has not only been my "baby" but many others as well. First and foremost, I would like to thank my advisor and mentor, Kathleen A. Martin for so many things. I am particularly grateful for your dedication to your students and to producing quality research--being accessible and flexible to unexpected visits and phone calls, providing an environment in which to learn and excel in academia, and by being an excellent role model for which to aspire--these allowed me to succeed personally and professionally and to achieve my goals.

Thank-you to my committee members, Dr. Larry Brawley, Dr. Diane Stevens, and Dr. Audrey Hicks for being a part of this thesis and providing helpful comments and suggestions, making this an even better project.

Jennifer Angove, what can I say? We did this together (our beast!). All the brainstorming, piloting, recruiting, testing, data entry, analyses, conference preparations. I could not have done this without you--thank-you.

Testing older adults has many benefits but one of the hardest aspects of researching this age group is the recruiting of participants. If it were not for Karen Winegard (Coordinator of the MacSenior and MacTurtle exercise programs) and Dr. Ellen Ryan and her assistant Ann Anas (from the Department of Gerontology), for providing access to hundreds of participants (not all eligible of course) we would not have finished this study. I would also like to thank all the participants for agreeing to be a part of health and exercise psychology research, particularly the MacSeniors and

Mac Furtles who were the participants in Study 1 and the 9 women and 1 man who were the exercisers in Study 2's videos.

I would like to thank my lab-mates--I was so fortunate to be a part of lab-group composed of interesting, knowledgeable, and supportive women, Amy, Mary, Tara, and Julie. Thanks to each of you for a listening ear, the continuous feedback and help, and of course for stocking our "chocolate" drawer ☺

This acknowledgement would not be complete without thanking my ultimate support network, my husband and family (immediate and extended). This degree is as much all of yours as it is mine. I love you all and I thank-you for just being there for me.

Paul, for nine years one of us (and sometimes both of us) has been a full-time student; that's a lot of tuition. Well guess what? School's out, let a new chapter in our lives begin!

Table of Contents

A STUDY OF SELF-PRESENTATIONAL VARIABLES IN EXERCISE SETTINGS AMONG OLDER WOMEN

	Page
Title Page	i
Descriptive Note	ii
Abstract	iii
Acknowledgements	v
Table of Contents	vii
List of Tables	xi
List of Figures	xii
Review of Literature and Statement of Purpose	1
Regular Physical Activity and Exercise	1
General exercise benefits	1
Exercise benefits for older adults	1
Health benefits of exercise for older women	3
Sedentary behaviour	5
Appropriateness of Exercise for Older Adults	7
Self-Presentation: A Two-Component Process	11
Self-Presentation and Older Adults	14
Self-Presentation and Exercise in Younger Adults	15
A measure of self-presentation in exercise	15
Self-presentation and exercise motivation	16
Self-presentation and exercise behaviour	17
An affective response: social physique anxiety	17
Social Physique Anxiety: A Closer Look	21
Social physique anxiety and personal factors	21
Social physique anxiety and reasons for exercise	22

Review of Literature and Statement of Purpose continued:

Social physique anxiety and attitudes toward exercise settings	25
Self-Presentational Efficacy	30
The Present Investigation	35
The Reliability and Validity of Measures of Physical Self-Perceptions and Exercise Motives Among Active Older Women: Study 1	37
Introduction	37
Method	41
Participants	41
Measures	42
Social Physique Anxiety Scale (SPAS)	42
Reasons for Exercise Inventory (REI)	42
Physical Self-Efficacy Scale (PSE)	43
Design	44
Procedure	44
Results	45
Mean Social Physique Anxiety Scores: Study 1 Versus the Literature	45
Psychometric Properties of the Scales: Descriptive and Reliability Coefficients	45
Correlations with SPA: Construct Validity	46
Are Fitness Motives More Important than Self-Presentational Motives?	46
Discussion	47
T-Shirts and Pants or Sleeveless Shirts and Shorts? A Study of Self-Presentational Variables in Exercise Settings Among Older Women: Study 2	58
Introduction	58
Hypotheses	64
1. Exercise motive correlations	64
2. Social physique anxiety correlations	64
3. Attitude toward exercise setting correlations	64
4. Exercise motives	65
5. Predicting attitude toward the exercise settings	65
6. Predicting changes in self-presentational efficacy	66
Method	66
Participants	66
Measurements and Materials	68
Body mass index (BMI)	68

Study 2 continued:

Level of physical activity engagement (PA)	68
Social Physique Anxiety Scale (SPAS)	69
Reasons for Exercise Inventory (REI)	69
Impression motivation in exercise (IM)	70
Self-presentational efficacy in exercise (SPE)	71
Modified Attitudes Toward Exercise Setting Questionnaire (ATES)	71
Stimulus materials	73
Design	73
Procedure	74
Results	75
Reliability Coefficients of the Scales	75
Descriptive Statistics	76
Correlation Matrices	76
Exercise motive correlations	76
Social physique anxiety correlations	77
Attitude toward exercise setting correlations	78
Are Fitness and Health Motives More Important than Self-Presentational Motives?	78
Predicting Attitude Toward the Exercise Settings	79
Predicting Changes in Self-Presentational Efficacy	82
Discussion	84
Attitudes and the Exercise Environment	85
Self-Presentational Efficacy and the Exercise Environment	89
Exercise Motives and Self-Presentational Concerns	91
Social Physique Anxiety and its Correlates	94
Implications for Clinical Application	97
Limitations and Future Directions	100
Summary	102
References	118
Footnotes	129

Appendices		
A	Study 1 Measures, Subscales, and Items:	131
	The Social Physique Anxiety Scale	132
	The Reasons for Exercise Inventory	133
	The Physical Self-Efficacy Scale	135
B	Study 2 Measures, Subscales, and Items:	136
	The Godin Leisure-Time Exercise Questionnaire	137
	The Social Physique Anxiety Scale	138
	The Reasons for Exercise Inventory	139
	The Self-Presentational Concerns in Exercise	141
	Questionnaire (Impression Motivation)	
	The Self-Presentational Efficacy Expectancy Scale for	142
	Exercise	
	The Modified Attitudes Towards Exercise Setting	143
	Questionnaire	
C	Details of the Video Pilot Study	144
	Pilot Study	145

List of Tables

Table	Title	Page
1	Study 1: Mean Social Physique Anxiety Scores in the Literature	54
2	Study 1: Descriptive Statistics for the Social Physique Anxiety Scale, Reasons for Exercise Inventory, and Physical Self-Efficacy Scale and Subscales	55
3	Study 1: Reliability Coefficients for the Social Physique Anxiety Scale, Reasons for Exercise Inventory, and Physical Self-Efficacy Scale and Subscales	56
4	Study 1: Correlations Between Social Physique Anxiety and the Reasons for Exercise Inventory Subscales, and Perceived Physical Ability Subscale	57
5	Study 2: Reliability Coefficients for the Measures	104
6	Study 2: Descriptive Statistics for the Measures	106
7	Study 2: Hypothesized and Observed Correlations Between Exercise Motives and Social Physique Anxiety and Impression Motivation	108
8	Study 2: Hypothesized and Observed Correlations Between Social Physique Anxiety and Age, BMI, Physical Activity, Impression Motivation, and Pre-Self-Presentational Efficacy	109
9	Study 2: Hypothesized and Observed Correlations Between Attitudes Toward Exercise Settings and BMI, Impression Motivation, and Pre-Self-Presentational Efficacy	110
10	Study 2: Predicting Attitude Toward Exercise Settings	111
11	Study 2: Predicting Changes in Self-Presentational Efficacy	112

List of Figures

Figure	Title	Page
1	Plot of the interaction effect of video and physical activity on attitudes toward exercise settings.	113
2	Plot of attitude toward exercise settings as a function of video after adjusting for BMI and physical activity.	114
3	Plot of the interaction effect of video and social physique anxiety on attitudes toward exercise settings.	115
4	Plot of the interaction effect of video and social physique anxiety on post-self-presentational efficacy.	116
5	Plot of post-self-presentational efficacy as a function of video after adjusting for BMI, physical activity, and pre-self-presentational efficacy.	117

Review of Literature and Statement of Purpose

Regular Physical Activity and Exercise

General exercise benefits. The physiological and psychological benefits of regular exercise, for people of all ages, are well documented. Consistent physical activity has been shown to increase longevity, decrease the risk of premature mortality, cardiovascular disease, hypertension, diabetes mellitus, and colon cancer (Surgeon General's Report: U.S. Department of Health and Human Services, 1996). Furthermore, physical activity has been shown to have positive effects on the musculoskeletal system (i.e., the health of muscles, bones, and joints) and improves mood, psychological well-being and quality of life, and decreases anxiety and depression across the life span (Surgeon General's Report, 1996). To achieve these results, research has shown that extensive amounts of exercise are not needed (Blair, Wells, Weathers, & Paffenbarger, 1994; for review see Dunn, Andersen, & Jakicic, 1998). In fact, accumulating 30 to 60 minutes of moderate physical activity (e.g., brisk walking to the bus stop, gardening) every day is recommended to stay healthy and to improve one's health (Health Canada, 1999; 1998).

Exercise benefits for older adults. Being active in later years provides many benefits in addition to those listed above. With respect to physiological benefits, engaging in resistance exercises improves postural stability, balance (American College of Sports Medicine [ACSM], 1998; Christmas & Andersen, 2000), dynamic muscle strength, and functional capacity (McCartney, Hicks, Martin, & Webber, 1995), thereby reducing the

risk of falls and injuries in this population (Christmas & Andersen 2000; Health Canada, 1999). As well, regular physical activity has been shown to improve flexibility and range of motion (ACSM, 1998; Christmas & Andersen, 2000) which are necessary when performing various tasks of daily living such as tying one's shoes. Taken together, physiological benefits of regular exercise engagement for older adults helps ensure continued independent living by improving physical health, functional capacity, balance, and flexibility (Health Canada, 1999) for older persons wishing to maintain or improve their health.

Psychological benefits of regular exercise for older adults (in addition to those listed in the "General Benefits" section) include the enhancement of personal control (ACSM, 1998). In the physical activity and exercise domain, personal control is commonly conceptualized as self-efficacy beliefs (ACSM, 1998); the belief in one's ability to perform various physical or functional behaviours (e.g., walking to the grocery store). As a result of the aging process, functional deterioration and restriction in ability to perform activities of daily living serve to reduce control beliefs. However, older adults' perceptions of personal control increase as their ability to perform activities of daily living improves. By exercising, older adults are more able to perform daily tasks and thus feel a greater sense of personal control and empowerment. Cognitive functioning tasks such as memory, attention, and reaction time (ACSM, 1998) are also improved through exercise thus contributing to independent living and greater control over one's life. Finally, health-related quality of life is improved through exercise participation (for a review see Rejeski, Brawley, & Shumaker, 1996). Health-related

quality of life (HRQL) refers to a person's satisfaction with valued aspects of his/her health and functional ability (e.g. physical, emotional, and social functioning; Rejeski et al., 1996). It could be argued that the importance of HRQL increases as one ages due to the natural degeneration of physical abilities over time. Therefore, by being active, older adults may be more satisfied with their emotional well-being, their ability to perform various role tasks (e.g., being a grandparent), and their physical functioning for tasks such as activities of daily living (e.g., grocery shopping, personal care).

Health benefits of exercise for older women. Among women in particular, exercise is very important as we age. Regular exercise can reduce the risk of certain diseases or the progression of certain diseases that occur later in life and are more commonly seen in women than men. For example, the relationship between regular physical activity and four conditions, osteoporosis, knee osteoarthritis, fibromyalgia, and breast cancer, which are primarily experienced by older women, will be discussed. Osteoporosis, which is characterized by the loss of bone density, is a significant health problem for post-menopausal women (Dubbert & Martin, 1988) because menopause causes estrogen to cease which in turn accelerates the loss of bone minerals (Drinkwater, 1994). Research indicates that regular physical activity reduces the risk of osteoporosis (Blair et al., 1994; Health Canada, 1999; Sallis & Owen, 1999). Thus, older women, who are particularly at risk for osteoporosis, can benefit from engaging in exercise programs.

Aerobic and resistance exercises have also been shown to decrease pain and improve physical functioning in individuals suffering from knee osteoarthritis (Ettinger et al., 1997). Knee osteoarthritis is a rheumatic disease which afflicts the joints of the body

and is characterized by joint inflammation and cartilage degeneration (Fife, 1997) resulting in pain and decreased range of motion capabilities (Sissons, 1983), making independent daily living difficult. This condition is more prevalent among women (Ledingham, Regan, Jones, & Doherty, 1993) and increases with age (Lawrence et al., 1998). In fact, overweight older women are at even greater risk for developing osteoarthritis of the knee compared with average weight older women and men, and overweight older men (Sandmark, Hogstedt, Lewold, & Vingard, 1999). Thus, exercise as a prescription to help reduce the negative symptoms of osteoarthritis of the knee is recommended for women.

Another arthritic condition common to older women (The Arthritis Society, 2001) and characterized by pain and disturbances of daily living is fibromyalgia (for a review see Culos-Reed, 2000). Fibromyalgia is a rheumatoid disease that affects numerous tenderpoints throughout the body. Physical activity has proven beneficial as a means to cope with fibromyalgia symptoms such as pain, and fatigue. In fact, a meta-analysis has shown that nonpharmacological treatments such as exercise and cognitive therapy resulted in greater improvements in self-reported fibromyalgia symptomatology compared to pharmacological treatments (Rossy et al., 1999). Again, regular physical activity provides many benefits for women suffering from fibromyalgia (for a review see Culos-Reed, 2000).

Finally, there is some limited evidence to suggest that proactive exercise can help reduce the risk of breast cancer (Sallis & Owen, 1999), a condition most prevalent in older women (Breast Cancer Society of Canada, 2001). However, just as with knee

osteoarthritis and fibromyalgia, physical activity can help combat negative symptoms of breast cancer treatment, specifically fatigue and nausea (Courneya & Friedenreich, 1999). By participating in exercise, breast cancer patients can increase their likelihood of maintaining their functional independence and may be more likely to lead active, normal lives.

In summary, maintaining independence and physical and mental health as one ages can be achieved by engaging in regular physical activity (Health Canada, 1999). In fact, the numerous physiological and psychological benefits of physical activity participation can be achieved by increasing one's level of physical activity among women at any age (Health Canada, 1999). But among older women in particular, activity participation can reduce the risk of various diseases (e.g., osteoporosis), decrease negative symptoms resulting from debilitating conditions (e.g., knee osteoarthritis), and improve health-related quality of life. Unfortunately, research indicates that many older adults, especially older women, are not sufficiently active to derive these health benefits; sedentary statistics will be examined in the following section.

Sedentary behaviour. Despite the benefits and numerous avenues to accumulate activity (e.g., gardening, housework, walking), 63% of all Canadians (Health Canada, 1998) are not active enough to achieve the rewards of physical activity. In fact, exercise participation decreases with age, particularly among women (Ruuskanen & Ruoppila, 1995), and 60% of older adults in Canada remain completely inactive (Health Canada, 1999) and do not receive any of the benefits garnered from regular physical activity. However, while exercise compliance rates for younger adults (i.e., < 55 years of age)

have been estimated at approximately 50% (Dishman, 1982), adherence rates for older adults (i.e., > 55 years of age) appear more promising at around 63% (Martin & Sinden, 2001). Although older adults seem better at adhering than younger people, there is still room for improvement in terms of both initiation and adherence. Thus, an understanding of factors that influence both exercise initiation and adherence for older women, is required.

The sedentary statistic and decline in physical activity participation in older women is disheartening; while the physiological benefits of increased activity are important to this population (e.g., reduced risk of various diseases including osteoporosis; Blair et al., 1994; Health Canada, 1999; Sallis & Owen, 1999), the ability to perform activities of daily living and to consequently improve independence, quality of life (Health Canada, 1999), and perceptions of personal control (ACSM, 1998) are even more important as these outcomes provide real-life evidence that exercise improves one's health. In fact, some researchers believe that older women's sedentary behaviour deserves increased attention compared to older men's "because they are more at risk [for poor health] by virtue of their superior longevity, often frail health, and social vulnerability" (O'Brien Cousins, 2000, p. 284). Given the importance of increasing physical activity among older women, the focus of the present research is on psychological characteristics that may play a role in older women's exercise decisions and behaviour.

Appropriateness of Exercise for Older Adults

In general, society holds negative perceptions regarding the appropriateness of exercise for older adults, particularly older women, and this attitude, among other factors, may contribute to the poor initiation and adherence rates of exercise among this population. Society's belief that older adults "at retirement...will 'slow down' and 'enjoy' a 'well-earned rest' " (Sidney & Shephard, 1976, p. 250), may prevent older adults from participating in exercise activities (Martin, Leary, & Rejeski, 2000). Unlike perceptions that people hold of exercising younger adults, which are considered highly favourable (i.e., positive attributions of personality and physical characteristics; Martin & Leary, in press; Martin, Sinden, & Fleming, 2000), the perceptions that people hold about exercising older adults are quite different.

For example, preschool (Ostrow, Keener, & Perry, 1987) and elementary school children (Behlendorf, MacRae, & Vos Strache, 1999) shown photographs of individuals of increasing age performing various physical and sport activities (i.e., throwing, jumping, playing tennis, weight-lifting) perceived the older age groups as less proficient at each activity than the younger age groups. Similarly, across a variety of activities (e.g., basketball, swimming, bicycling), college-aged students viewed sport participation as less appropriate for individuals as chronological age increased (Ostrow, Jones, & Spiker, 1981). In studies where older men and women were asked about age-similar peers engaging in physical activity, negative attributions were also made. Specifically, negative perceptions existed regarding a) the exercise itself (i.e., negative feelings towards recreational activities, misperceptions regarding the benefits of exercise; Baley, 1955;

Conrad, 1976; Khoury-Murphy & Murphy, 1992; O'Brien Cousins, 2000) and b) the appropriateness of certain exercise activities (Ostrow & Dziewaltowski, 1986; Khoury-Murphy & Murphy, 1992). One study (O'Brien Cousins, 2000), found that when older women were asked about the potential benefits and risks of 6 fitness activities (brisk walking, aquacize, cycling, stretching, push-ups, and curl-ups), older women attributed many benefits to the exercises yet beliefs about the risks of exercises were strong and often sensational. An example of a sensationally described risk when performing trunk curl-ups was that this activity would result in "snapping my neck" and "death" (O'Brien Cousins, 2000, p. 289). Taken together, these results suggest that society seems to hold a negative view towards exercise participation in older adults.

Society's negative beliefs about activity involvement for older women has recently been attributed to the perception that menopause perpetuates a disempowering stereotype (Vertinsky, 1998). We are bombarded with inaccurate perceptions regarding menopause--menopause results in physical decay and loss of functioning; notions which insinuate that as women age, they are not physically suited to life after menopause (Vertinsky, 1998). As a result, women's fears about menopause and aging are heightened and they tend to overestimate the health risks of exercise (consistent with O'Brien Cousins' [2000] findings above) and worry about wearing-out their bodies and getting injured (Vertinsky, 1998). Given the levels of inactivity reported among older women, it seems that older women readily accept the views of society and consequently fail to engage in regular physical activity. Therefore, interventions are required to help dispel the "inappropriateness of exercise" myth in this population.

Some research has shown that interventions using exercise participation as a tool to help older adults change negative attitudes towards exercise participation are not particularly successful (Shephard, Montelpare, Berridge, & Flowers, 1986; Sidney & Shephard, 1976). Specifically, some researchers believed that after participating in an exercise program, attitudes to exercise would change. One study (Sidney & Shephard, 1976) found that older adults altered their attitudes toward exercise for the better after a 14-week exercise program; however, the results were not statistically significant. Another study (Shephard et al., 1986) in which older adults participated in a 20-week exercise and health education program (health education included discussions on smoking, obesity, and exercise) did not find changes in older adults' attitudes toward physical activity. These results however, should be treated with caution: these interventions did not target the array of negative beliefs the older adults held regarding exercise and the appropriateness of them engaging in exercise. Rather, they only provided general information about various health-related activities (e.g., smoking, obesity, and exercise) and/or targeted their exercise behaviour. Therefore, significant differences in perceptions post-intervention do not appear warranted because the source of these perceptions (i.e., beliefs) was not specifically targeted.

In contrast, one study of older American southern women (Khouri-Murphy & Murphy, 1992) was successful at changing the perceptions of the participants by targeting the specific cultural obstacles (e.g., weight lifting is a lower class activity) and misgivings regarding physical activity participation (e.g., lifting weights will masculinize the female body). The cultural barriers and misgivings of these women were alleviated by directly

challenging inaccurate cultural images and providing correct information regarding the effects of the prescribed exercise. An indirect and surprisingly unplanned means of changing the inaccurate perceptions resulted from symbolically distancing the women from the stereotyped images. This was achieved by conducting the exercises in an atypical setting; weight lifting classes took place in a remodeled home, not a “hard-core” gym, and plastic pastel-coloured weights were used instead of heavy, steel weights. Thus, the stereotypical image of weight lifting was dispelled. The results of this study suggest that older adults’ perceptions regarding exercise and the appropriateness of exercise can be changed for the better by directly targeting cultural beliefs, providing accurate exercise benefit information, and creating an environment which distances itself from stereotypical images. This seems to be a more meaningful approach than simply trying to change behaviour.

While historically, individuals of all ages have believed that exercise participation is inappropriate for older adults (Behlendorf et al., 1999; Khoury-Murphy & Murphy, 1992; Ostrow & Dzewaltowski, 1986, Ostrow et al., 1987; Ostrow et al., 1981; Vertinsky, 1998), it is hoped that this view will change. By highlighting the numerous benefits of physical activity engagement for older adults, targeting the specific misgivings older adults have regarding exercise, and creating programs which distance stereotypical images, the “inappropriateness of exercise” myth may begin to be dispelled and a barrier to exercise participation may be alleviated. In doing so, a greater number of older adults may initiate and maintain exercise regimes and reap the rewards of physical activity engagement. However, changing society’s perceptions regarding the

appropriateness of exercise for older adults may be only the first step towards solving the inactivity and adherence dilemma in this age group. Determination of other factors that may influence older adults' exercise behaviour, specifically factors that affect older women's decisions to exercise, is also required.

Self-Presentation: A Two-Component Process

One psychological factor that may shed further light on issues influencing the decision to exercise is self-presentational concerns. Self-presentation (or impression management) is the process individuals use to control the perceptions others have of them (Leary, 1995; Leary & Kowalski, 1990). Leary and Kowalski (1990) point out that while some researchers believe self-presentation also involves processes used to maintain the presentation people have towards themselves (private self-presentation), these processes are separate from the definition of self-presentation provided above (public self-presentation). Private self-presentation utilizes strictly cognitive processes to impression manage, while public self-presentation also uses behavioural techniques (as explained by the the two-component model described below). A second difference between private and public self-presentation is that the latter construct is affected by social factors while the former is not. Given that the present investigation examines self-presentation and its effects on behaviour in different social exercise environments, only the public self-presentation concept, referred to from this point forward as "self-presentation," will be used.

Using a two-component model, self-presentation can be described as consisting of two discrete processes: impression motivation and impression construction (Leary &

Kowalski, 1990). Impression motivation, a cognitive factor, refers to individuals' desires to create a desired impression in others' minds (i.e., the motivation to manage public impressions). The second component, impression construction, is a behavioural component and refers to the altering of behaviours to create a desired impression. Factors affecting each self-presentation component will be described in turn.

Individuals are motivated to impression manage to attain social and material outcomes (i.e., friendship, power, wealth), to enhance their self-esteem, and to develop an identity (e.g., being healthy and fit). However, the degree to which individuals are motivated to achieve these outcomes are affected by three variables. First, individuals are motivated to impression manage when the fulfillment of a desired goal (e.g., enhancement of self-esteem) is relevant. Second, as the value of the desired goal increases, motivation to self-present also increases. Finally, individuals are motivated to impression manage when they think there is a discrepancy between the image others currently hold of them and the image they would like others to hold of them. For example, a person may perceive others to hold a less favourable image of them than is desired (e.g., due to public failure; Leary & Kowalski, 1990).

How one goes about creating a desired impression is captured by the impression construction component. Determinants of this behavioural factor are intra- and inter-personal in nature. An intra-personal variable that influences the manner in which people impression manage is the desire to preserve one's self-concept. By preserving one's self-concept, an individual tries to ensure that others accurately perceive him/herself. Another intra-personal variable, which influences impression construction, is the desire to portray

a particular image. For example, how one would like and not like to be perceived influences subsequent self-presentational behaviour. Three inter-personal determinants influence impression construction. The first, role constraints, modify self-presentational behaviour because social roles carry expectations about how a person should behave. For example, a person may avoid situations that jeopardize one's public image to ensure it remains consistent with one's social role. A second inter-personal variable which influences impression construction, is other people's values. For example, a person may modify his/her public image to appear consistent with the values of important others. The final inter-personal determinant is one's current or potential social image. In other words, how one perceives he/she is viewed by others and how one thinks he/she may be perceived in the future (Leary & Kowalski, 1990).

In summary, self-presentation consists of two components, impression motivation and impression construction. These components are dynamically intertwined, each feeding the other to create a desired impression, and can be observed in all areas of life (e.g., home, business, in social contexts, school; Leary & Kowalski, 1990). Furthermore, self-presentation can influence a person's decision to engage in a variety of health-related behaviours including both health-damaging (e.g. taking illicit drugs) and health-promoting behaviours (e.g., exercising, using a condom, wearing sunscreen; Leary, Tchividjian, & Kraxberger, 1994). Exercise is one health-promoting behaviour that may be influenced by self-presentation and will be examined later in the chapter. First, a discussion of self-presentation and older adults is presented.

Self-Presentation and Older Adults

Thus far, self-presentation, its components and determinants, have been defined and summarized based on research conducted primarily on younger people. Notably however, a recent review focusing on older adults suggests that this age group also experiences self-presentational concerns in their daily lives (Martin et al., 2000). As with younger people (e.g., Silberman, Striegel-Moore, Timko, & Rodin, 1988), older people are concerned with others' evaluations of their physical appearance (Martin et al., 2000; Ross, Tait, Grossberg, Handal, Brandeberry, & Nakra, 1989). This is not surprising given the enormous changes the body undergoes during the life-span and particularly in older age. Specific age-related appearance changes include wrinkling of skin, decreasing in height, posture changes, and the greying of hair (Gerike, 1990; Krauss Whitbourne, 1998). These age-related changes may cause older adults, particularly older women, to feel inadequate and socially distant from today's "young and vital" media image of beauty and the ideal woman.

Given their concerns about appearance, it's not surprising that older people engage in impression management techniques to control physical appearance perceptions (for a review see Martin et al., 2000). This population may go to great lengths to maintain its youthful appearance by using various beauty products, engaging in exercise regimes beyond its means or avoiding physical activity all together. However, these appearance concerns can also serve to motivate older adults to increase their physical activity to an appropriate level and to maintain a healthy lifestyle as a strategy for making themselves more physically attractive (Martin et al., 2000).

Older adults also engage in impression management to preserve the perception of being self-reliant and physically and psychologically competent (Martin et al., 2000). By simply increasing daily physical activity, Health Canada (1999) indicates that older adults can gain independence and improve physical and mental health. Therefore, self-presentation tactics such as stopping “to look at a beautiful garden” when in need of a break from walking may not be needed to “hide” age-related functional changes that can be overcome by exercise (i.e., regular physical activity improves endurance). Self-presentation in exercise settings however, has not been heavily researched in the older adult age group. Conversely, research on this topic has been conducted among younger adults and may provide a useful framework or starting point for future older adult studies of self-presentational processes or concerns in the exercise domain.

Self-Presentation and Exercise in Younger Adults

A measure of self-presentation in exercise. Keeping the two-component model in mind, attempts to create a questionnaire assessing self-presentation in exercise settings have been undertaken. Specifically, two series of studies (Conroy, Motl, & Hall, 2000; Gammage, Hall, Prapavessis, Madison, Haase, & Martin, 2001a) using college-aged individuals attempted to validate questionnaires containing impression motivation and impression construction items which measured self-presentation of oneself as a competent exerciser (i.e., a fit, healthy, active individual). The first study’s (Conroy et al., 2000) 11-item Self-Presentation in Exercise Questionnaire consisted of 6 impression motivation items such as “I value the attention and praise of others when they regard me as being in good shape” and 5 impression construction items such as “I want others to

see me with friends who are exercising.” Items were rated on a 6-point Likert-type scale [(1) strongly disagree to (6) strongly agree]. Overall, scores could range from 11 to 66 with higher scores indicating greater self-presentation concerns in exercise (i.e., participants are less likely to feel that they present themselves as an exerciser).

Subsequent applications of the Self-Presentation in Exercise Questionnaire (SPEQ) have not provided appropriate psychometric validation of this scale (Conroy, Botsford, & Motl, 1999; Conroy, Motl, & Hall, 1998). As a result, researchers (Gammage et al., 2001a) re-visited the Self-Presentation in Exercise Questionnaire as a measure of self-presentation in exercise settings. Scale reconstruction and statistical analyses resulted in a 4-item Self-Presentational Concerns in Exercise scale consisting of only impression motivation questions (see Appendix B). Overall, scores on this scale can range from 4 to 24 with higher scores indicating higher motivation to self-present in an exercise domain. The Self-Presentational Concerns in Exercise scale appears to be a psychometrically valid and reliable measure of exercise-related self-presentational motivation (Gammage et al., 2001a). While this research indicates that it is difficult to measure behaviours that individuals perform in order to present themselves as exercisers, there is considerable research indicating that both motivation and behavioural processes of self-presentation occur in exercise settings (Leary, 1992).

Self-presentation and exercise motivation. Self-presentational processes are frequently observed in exercise and fitness contexts among younger adults. According to Leary (1992), two motivating influences for exercise participation are improving or maintaining one’s physical appearance, and maintaining a fit/athletic social identity.

However, these same motivating factors can demotivate other individuals from exercise; concerns about being perceived as having an undesirable appearance or physique may prevent an individual in need of exercise from engaging in regular activity because he/she does not wish others to see them in exercise attire or exercising at all. Similarly, individuals may want to appear athletic and fit, yet feel that they are incompetent and lack the skills to portray such an identity.

Self-presentation and exercise behaviour. Self-presentational concerns are also reflected in an individual's choice of physical activity and the context in which the activity is performed. For individuals with high self-presentational concerns (i.e., individuals who are concerned with their ability to control the perceptions others have of them in a particular context), certain activities may be avoided such as aquatics, aerobics classes or jogging unless performed in private, familiar settings (Leary, 1992). For example, one study found that overweight females sought out exercise settings that consisted of weight-similar peers due to concerns with being seen while exercising and being embarrassed by their exercise abilities (Bain, Wilson, & Chaikind, 1989). Such exercise choices may be the result of anxiety about presenting one's body in front of others. One type of anxiety or affective response to exercise that is the result of self-presentational concerns is social physique anxiety (Hart, Leary, & Rejeski, 1989).

An affective response: social physique anxiety. Social physique anxiety has been heavily studied in the younger population and refers to the anxiety one sometimes feels in response to the perception that others are evaluating one's physique (Hart et al., 1989). This construct is different from other body image concerns because the focus is on

worries about the evaluation of others, not about one's evaluation of one's own body *per se*. People who experience high social physique anxiety are less comfortable having their physique evaluated and have frequent negative thoughts about their physique under such conditions (Hart et al., 1989).

When examining the relationship between social physique anxiety and the location of physical activity participation, research has shown the following. When compared to the exercise location preferences of a large sample of Canadian young women (aged 15 to 19), young females (aged 17 to 19 years) with high social physique anxiety tended to prefer more private exercise settings, such as exercising at home, over exercising in public settings such as at a fitness club (Spink, 1992). In fact, young women with high social physique anxiety preferred to exercise in more private settings and less in public settings (e.g., at a club, community centre, or university) than was predicted. In contrast, exercise location preferences for young women with low social physique anxiety did not differ from location preferences of young Canadian women in general. In other words, young women who are not as concerned about presenting their bodies in front of others were just as comfortable exercising at home as they were exercising in public (Spink, 1992). These results suggest that one self-presentation concern, social physique anxiety, influences younger women's choice of location when exercising.

The relationship between exercise behaviour (i.e., frequency or duration of exercise bouts) and social physique anxiety is less clear. Some research has found that social physique anxiety influences exercise behaviour such that those with higher social physique anxiety are less likely to engage in physical activity than those with lower social

physique anxiety (Lantz, Hardy, & Ainsworth, 1997). In one study (Lantz et al., 1997), men and women between the ages of 18 and 60 years were examined. Overall, social physique anxiety was negatively correlated with exercise frequency: as social physique anxiety increased, frequency of exercise participation decreased. However, when gender and age were considered, this relationship remained only for the men aged 18 to 45 years. Consistent with the finding that no relationship between exercise behaviour and social physique anxiety existed for women, one study examining college-aged females (Crawford & Eklund, 1994) found that regardless of how exercise behaviour was measured (i.e., number of days per week, minutes per day exercised, or minutes per week exercised), social physique anxiety and amount of activity engagement were not related. Therefore, it appears that age and gender moderate the relationship between social physique anxiety and exercise behaviour such that as social physique anxiety increases, exercise behaviour decreases but only for younger men, not older men or women of any age.

Another study found similar results to those mentioned above. Overall, middle- to older-aged individuals who exercised less reported greater levels of social physique anxiety (McAuley et al., 1995). However, this result was eliminated when controlling for changes in body composition over the course of the exercise intervention: participants with smaller changes in body composition had higher physique anxiety. Thus in addition to age and gender, body composition appears to influence the relationship between social physique anxiety and exercise behaviour.

In contrast to the above mentioned findings, other research has shown that males and females (aged 17 to 48 years) with high social physique anxiety exercise more days per week than low anxiety individuals (Frederick & Morrison, 1996). This study however did not examine whether variables such as age, gender, or body composition moderated the relationship between social physique anxiety and exercise behaviour. Therefore, further examination of the relationship between social physique anxiety and exercise behaviour is required to explain these conflicting results. For example, determining other moderators, potential mediators or experimental factors that may have influenced the results, would be beneficial.

Despite the extant knowledge regarding younger adults, exercise, and social physique anxiety, little research has examined affective self-presentational concerns in the exercise domain for older adults. With specific reference to social physique anxiety, only three studies have examined this construct in adults over the age of 55 years (Lantz et al., 1997; McAuley et al., 1995; Ransdell, Wells, Manore, Swan, & Corbin, 1998). While all three studies researched the relationship between social physique anxiety and exercise behaviour (Lantz et al., 1997; McAuley et al., 1995 mentioned above), only one study (Ransdell et al., 1998) has examined adults over the age of 64 years (post-menopausal women) and found that older women who expended less energy when exercising had higher social physique anxiety. Importantly, the age range of the participants in Lantz et al. (1997) and McAuley et al.'s (1995) studies also included younger- and/or middle-aged adults as these studies did not look specifically at an older adult population. Again, further research is needed which examines older peoples' self-

presentation concerns with regards to exercise, namely social physique anxiety. In fact, studying older women is of particular interest as social physique anxiety is experienced to a greater degree in women than men (Frederick & Morrison, 1996; Hart et al., 1989; Lantz et al., 1997; McAuley et al., 1995) and may thus represent a potential barrier to exercise participation in the female population.

Social Physique Anxiety: A Closer Look

Social physique anxiety and personal factors. Social physique anxiety has been found to relate to personal factors such as gender, body composition, and age. Literature shows that women across the life-span experience greater social physique anxiety than men of similar ages (Frederick & Morrison, 1996; Hart et al., 1989; Lantz et al., 1997; McAuley et al., 1995). With respect to body composition, individuals who weigh more (Hart et al., 1989; Spink, 1992; Treasure, Lox, & Lawton, 1998), have a greater body mass index (Hausenblas & Martin, 2000), and percent body fat (McAuley et al., 1995; Randsall et al., 1998) experience higher levels of social physique anxiety.

As individuals age, social physique anxiety has been shown to decrease in a variety of populations (e.g., female aerobic instructors; Hausenblas & Martin, 2000; middle-aged adults; McAuley et al., 1995; sedentary, obese females; Treasure et al., 1998). Conversely, other researchers have not found a relationship between age and social physique anxiety (Frederick, & Morrison, 1996; Ransdell et al., 1998). As previously mentioned, social physique anxiety among older adults has not been heavily researched. Therefore, more information is required before conclusions regarding the relationship between age and social physique anxiety can be drawn.

Social physique anxiety and reasons for exercise. Using the Social Physique Anxiety Scale (Hart et al., 1989) to assess social physique anxiety and the Reasons for Exercise Inventory (Silberstein et al., 1988) to measure exercise motives (e.g., weight control, health, fitness, physical attractiveness, muscle tone, mood enhancement and enjoyment) the relationship between social physique anxiety and exercise motives has been examined in a number of younger adult populations. It appears that whether one is an exercise instructor or a participant, individuals with high social physique anxiety exercise primarily for self-presentational purposes such as weight control, body tone, physical attractiveness, and overall body appearance (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Frederick & Morrison, 1996; Hausenblas & Martin, 2000).

Furthermore, motives that are relatively independent of self-presentation are not correlated with social physique anxiety (i.e., fitness, mood enhancement, and enjoyment; Crawford & Eklund, 1994; Eklund & Crawford, 1994). Interestingly, health motives have been shown to negatively correlate with social physique anxiety in one study of highly active college-aged women (Eklund & Crawford, 1994). While Eklund and Crawford (1994) offer no explanation for this finding, these women were exercising over 6 hours per week, were highly educated in the physical activity domain, and likely aware of the health benefits of regular activity. Thus, it is possible that those who were less concerned with the evaluation of others were motivated by health-related factors while those who were more concerned with social evaluation were motivated to exercise by self-presentational concerns.

Reasons for exercising and their relationship to social physique anxiety have not been examined in older adult populations. Specifically, of the three studies examining exercise motives in older age groups (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000), social physique anxiety has not been assessed at all. However, one study (Tiggemann & Williamson, 2000) used the Reasons for Exercise Inventory (Silberstein et al., 1988) and compared exercise motives to body satisfaction and self-esteem in a group of young adults (i.e., 16–21 years) and mature adults (i.e., 22–60 years) using multivariate analysis of variance (MANOVA) and correlational analyses. The results of the MANOVA indicated a significant main effect for both gender and age such that younger participants exercised more for attractiveness and enjoyment compared to mature participants and women exercised more for weight control, muscle tone and mood enhancement compared to men. In addition, correlations revealed that lower body satisfaction of all participants was related to the endorsement of weight control and physical attractiveness motives and higher self-esteem was related to endorsement of health and fitness motives for exercising.

The second study (Gill & Overdorf, 1994) did not assess exercise motives using the Reasons for Exercise Inventory (Silberstein et al., 1988). Instead, exercise incentives (e.g., weight control, physical fitness, physical health, mental health, appearance, and stress management, to name a few) were examined in exercising women of four age groups: a) under 31, b) 31–40 years, c) 41–50 years, and d) 51–60 years. Nonsignificant trends revealed that the oldest women placed more importance on fitness, physical and mental health incentives compared to younger age groups and the youngest women

placed greater importance on physical appearance incentives compared to the older age groups. Similarly, the third study (Sidney & Shephard, 1976) examining older men's and women's (M age = 66 years) perceived motivation for exercise found that improvement in health and fitness were of primary importance to this age group, as listed in an open-ended format by the participants. Interestingly, body appearance and weight control were also cited as important reasons why older women and men engaged in exercise.

Collectively, the above mentioned results suggest that age and gender differences are found for exercise motives and should be considered when creating meaningful physical activity programs for different populations. Mature adults (i.e., > 60 years) appear to exercise for health and fitness benefits while younger adults (particularly women) exercise primarily for self-presentational reasons (i.e., appearance and weight control; Gill & Overdorf, 1994; Tiggemann & Williamson, 2000). Therefore, when designing fitness programs for older adults, highlighting the health and fitness benefits of exercise may help these individuals engage and adhere to their program. Additionally, older women with poor body satisfaction may benefit from information detailing how exercise can improve their physical appearance and control their weight. Programs highlighting strictly self-presentational motives for exercise (i.e., tone muscle and appearance only with no health and fitness benefits) may work best for younger women and in fact discourage older women from participating in exercise because the older women may feel that their concerns regarding health and fitness are not important or being met.

However, more research is needed to uncover exercise motives of adults older than 60 years and their relationship to social physique anxiety (note: Gill & Overdorf, 1994 and Tiggemann & Williamson, 2000 did not include participants over 60 years of age and did not measure social physique anxiety). One reason to examine physical activity motives and social physique anxiety in older adults, particularly older women, is to discover whether self-presentational concerns prevent or promote exercise participation. It could be discovered that while older women are motivated to exercise for health-related reasons, social physique anxiety may prevent these activities from being performed. For example, health and fitness motives may motivate an older woman to participate in an age-similar walking group, yet concerns with presenting her body in front of others may prevent her from participating. Taking this example one step further, should the members of the walking group wear attire that highlights the physique such as shorts and sleeveless shirts, the older woman may be even more adverse to participating in the group despite her good intentions to be physically active. In fact, research examining younger women indicates that social physique anxiety and the clothing worn by other exercisers influences the type of exercise settings they prefer (Crawford & Eklund, 1994). Therefore, determining which motives are important and which exercise environments are preferred by older women and how they relate to social physique anxiety is helpful when creating appropriate exercise programs for this age group.

Social physique anxiety and attitudes toward exercise settings. As mentioned above, young women's social physique anxiety influences their preference for exercise environments (Crawford & Eklund, 1994). Specifically, Crawford and Eklund (1994)

examined the relationship between social physique anxiety and the attitudes moderately active college-aged women had towards a video of an aerobics class where the exercise class members wore either: (a) conservative attire (i.e., shorts and t-shirts) which did not highlight the physique, or (b) aerobics, flashy attire (i.e., tights and thong leotards) which emphasized the physique. Attitude was measured by asking participants questions such as: "This would be a good group to exercise with," and "I would feel comfortable exercising with this class." Participants rated 6 items on a Likert-type scale from (1) not at all to (5) extremely with higher scores indicating a more favourable attitude towards the exercise setting. Overall, regardless of social physique anxiety, participants had a more favourable attitude towards the video where exercise members wore the conservative attire compared to the aerobics attire. Furthermore, social physique anxiety was related to exercise video preference. Correlations revealed that young women with higher social physique anxiety had more favourable attitudes towards the conservative attire video and young women with lower social physique anxiety had more favourable attitudes towards the aerobics attire video. These results suggests that moderately active young women prefer exercise environments where conservative clothing is worn and that social physique anxiety plays an important role in exercise setting preferences.

A follow-up study by Eklund and Crawford (1994) produced conflicting results with their earlier study. In their sample of highly active college-aged women, while there was a modest preference for the conservative attire video, social physique anxiety did not correlate with attitude toward either the conservative or the aerobics attire exercise setting. In other words, concerns about presenting one's body in front of others, for

highly active young women, appear to have no influence on their preferences for exercise environments that emphasize or de-emphasize the physique. Interestingly, the researchers did ask participants to answer questions with respect to the kinds of clothes they themselves preferred to wear while exercising. Results indicated that social physique anxiety was negatively associated with preferences for wearing tight-fitting attire (as social physique anxiety increased, preferences for tight clothing decreased) and positively associated with preferences for loose-fitting attire (as social physique anxiety increased, preferences for loose clothing increased). Taken together, the results of Crawford and Eklund's two studies (1994) indicate that social physique anxiety and physical activity level are important factors which can influence exercise settings preferences and the clothing worn by younger women when exercising. Specifically, social physique anxiety and level of physical activity participation moderated young women's exercise setting preferences. Social physique anxiety influenced exercise preferences for less active women (those with higher physique anxiety preferred the conservative attire environment) but not for highly active women. Moreover, less active women were more likely to prefer the conservative attire exercise setting compared to highly active women (Crawford & Eklund, 1994; Eklund & Crawford, 1994).

Looking more closely at the relationship between clothing attire, concerns younger women have with presenting their bodies in exercise environments, and physical activity participation, qualitative research (Frederick & Shaw, 1995) has shown that some women felt less confident about their bodies when participating in aerobics classes where revealing spandex or lycra clothing was worn by other exercisers. While the revealing

clothing did not prevent many of the women from participating in the aerobics class, the clothing worn by other exercisers reduced their level of enjoyment. The fact that exercise participation was not affected by the physique-emphasized setting for some women is an encouraging result; despite body concerns and the exercise environment, some younger women are able to overcome potential barriers to exercise participation. For example, one woman reported that,

Despite feeling uncomfortable about her body and about her recent weight gain, feelings about her body had not prevented her from participating in aerobics because she felt that her class would help her lose her unwanted body weight and help her feel better about herself. (Frederick & Shaw, 1995, p. 69).

This statement is further support for the idea that both social physique anxiety and physical activity participation influence women's attitudes toward exercise environments.

Additional research examining what women with high social physique anxiety actually wear when engaging in cardiovascular activities (e.g., treadmill running/walking, stairclimbing, stationary cycling) revealed unexpected results (Brewer, Holmes, Van Raalte, & McDevitt, 1997). Women were observed exercising on the different apparatus and their upper and lower body apparel was coded as either "most revealing" or "most concealing." Participants were given an overall concealingness score with higher scores indicating more concealing apparel. It was hypothesized that women with high social physique anxiety would tend to wear concealing exercise clothing. Results indicated that there was no relationship between social physique anxiety and the exercise concealingness ratings. This result may be explained by the fact that while an overall

concealingness score was obtained for each participant, some women might have been wearing concealing clothing in one area of their body to hide certain body concerns and revealing clothing in areas they were not concerned about. Indeed, Frederick and Shaw (1995) noted in their qualitative study “she developed a negotiating technique to ease her intimidation...she wore the traditional aerobics wear, but covered her body with a baggy t-shirt to conceal the part of her body that she felt least comfortable revealing” (p. 64). Therefore, a relationship between what women actually wear and social physique anxiety may have been obtained if upper and lower body apparel were examined separately.

In summary, the attitudes younger women have towards different exercise environments is influenced by social physique anxiety (those with higher physique anxiety prefer conservative attire environments; Crawford & Eklund, 1994) and physical activity level (less active women are more likely to prefer conservative attire environments; Crawford & Eklund, 1994; Eklund & Crawford, 1994). Furthermore, qualitative research (Frederick & Shaw, 1995) indicates that younger women are less comfortable and do not always enjoy exercising in aerobics environments where physique-emphasizing clothing is worn. However, although enjoyment may be compromised, participation may not be prevented due to these circumstances.

A continuing theme throughout this chapter is the lack of information regarding exercise concerns and preferences in older women. Does the physical activity level of older women impact the attitude they have towards different exercise settings? Are self-presentational variables such as social physique anxiety important factors in older women’s exercise decisions? Replicating Crawford and Eklund’s two video studies

(1994) with older women as participants may provide answers to these questions and provide important information for health promoters when creating appropriate programs and exercise environments for older women. First however, a discussion concerning another self-presentation variable --self-presentational-efficacy--is required.

Self-Presentational Efficacy

The previous section highlighted a self-presentational factor, social physique anxiety, which has been found to influence younger women's preferences for particular exercise environments. The present section will focus on another self-presentational variable, self-presentational efficacy, which may in turn be influenced by different exercise settings.

Self-presentational efficacy, defined as the subjective probability of conveying a particular impression to others, consists of the interaction between two components (Maddux, Norton, & Leary, 1988). The first component, self-presentational outcome expectancy refers to a person's expectation that a particular behaviour or image will lead to a desired outcome. For example, a person may believe that engaging in exercise three times per week will create the impression of being a fit, healthy individual. The second component, self-presentational efficacy expectancy, refers to a person's confidence in performing the necessary behaviour(s) or presenting the image that will lead to the desired goal (Maddux et al., 1988). For example, a person may not be confident that he/she will successfully be able to engage in exercise three times per week and thus not be able to make the impression of being a healthy, fit individual.

Self-presentational efficacy has been shown to relate to a variable influenced by self-presentation--social anxiety. Social anxiety refers to the anxiety individuals sometimes feel when they doubt their ability to make a desired impression on others in real or imagined public situations (Schlenker & Leary, 1982). Research indicates that individuals with high social anxiety have lower self-presentational efficacy expectations and outcome expectations compared to those with low social anxiety (Maddux et al., 1988). In other words, individuals anxious about making a desired impression are less confident in their ability to perform the behaviour(s) required to make the desired impression (efficacy expectancy) and are less likely to expect the behaviour(s) to produce the desired impression even if they were performed successfully (outcome expectancy). In fact, one study of college-aged individuals (Maddux et al., 1988) found that self-presentational efficacy expectancy emerged as the most potent predictor of anticipated anxiety suggesting that targeting efficacy expectancies (as opposed to outcome expectancies) in persons with social anxiety may help to alleviate the anxious feelings they experience.

One way to boost efficacy expectations is to highlight individuals' past performance accomplishments (Bandura, 1977). Leary and Atherton (1986) proposed that providing a positive, nonthreatening social environment, in which socially anxious individuals can practice interactions with others, may provide an excellent means to improve efficacy expectancies. Taking this idea one step further, highlighting positive past performance accomplishments or providing an environment which enhances self-presentational efficacy expectancies in the exercise domain may help reduce women's

concerns about presenting their bodies in front of others (i.e., may decrease social physique anxiety).

Recently, self-presentational efficacy and social physique anxiety have been examined in the area of exercise for college-aged women (Gammage, Hall, & Martin, 2001b; Gammage, Martin, & Hall, 2001c). The first of Gammage and colleagues' studies (2001b) measured both self-presentational efficacy expectations and outcome expectations and revealed that women who were categorized as high frequency exercisers (i.e., participating in exercise more than 3 times per week) had greater self-presentational efficacy expectations than low frequency exercising women (i.e., participating in exercise 1 to 2 times per week). In other words, high frequency exercisers were more confident in their ability to present themselves as competent exercisers (i.e., being coordinated, fit etc.) than were low frequency exercisers. In fact, self-presentational efficacy expectancy was the most potent predictor of exercise frequency, and consistent with the social anxiety research mentioned above (Maddux et al., 1988), self-presentational efficacy expectations accounted for the most variance in social physique anxiety. In contrast, self-presentational outcome expectancy did not differ between the two groups and did not emerge as a predictor of social physique anxiety (Gammage et al., 2001b). Taken together, these results indicate that self-presentational efficacy expectancy is an important factor in exercise situations and should be considered when attempting to change exercise behaviour and physique anxiety. In addition, future investigations would benefit from examining factors that may influence self-presentational efficacy expectancies. For example, examining whether an exercise setting which provides a comfortable,

supportive environment by de-emphasizing women's bodies (i.e., no mirrors, conservative clothing) influences self-presentational efficacy expectancy differently than an exercise setting which emphasizes the body (e.g., mirrored environment, revealing clothing) would be helpful when trying to enhance self-presentational efficacy (Gammage et al., 2001b).

Such an investigation was undertaken in the second of Gammage and colleagues' studies (2001c) of college-aged female exercisers. While a purpose of this study was to determine whether high and low self-presentational efficacy expectancy participants differed in social physique anxiety and social anxiety, first, efficacy expectancy had to be manipulated. (Here only the efficacy expectancy component of self-presentational efficacy was measured due to previous research finding that this construct was most closely related to an anxiety observed in the exercise domain [i.e., social physique anxiety; Gammage et al., 2001b] and general anxiety experienced in public situations [social anxiety; Maddux et al., 1988].) Self-presentational efficacy expectancy was manipulated via the exercise environment. Specifically, participants in the low efficacy expectancy group were told that they were going to engage in aerobics exercise in a mirrored studio, while wearing spandex aerobics shorts and a sports bra, and while being videotaped individually. In contrast, participants in the high efficacy expectancy group were told that they would be exercising in a studio without mirrors, while wearing shorts and a t-shirt, and while being videotaped as a group. A manipulation check revealed that women exposed to the high efficacy expectancy environment description (i.e., absence of mirrors, loose-fitting clothing, whole group videotape) had significantly higher

confidence in their ability to present themselves as healthy, fit individuals than those exposed to the low efficacy expectancy environment description (i.e., mirrors, revealing clothing, individual videotaping). In addition, those women in the high efficacy group had lower state social anxiety (anxiety specific to exercise classes) and lower social physique anxiety compared to women in the lower efficacy group. Thus, the thought of engaging in various exercise environments can serve to influence young women's self-presentational efficacy expectancy and in turn, as Gammage et al (2001c) predicted, can influence social physique anxiety and social anxiety. Taken together, these results are consistent with Leary and Atherton's (1986) suggestion that producing a comfortable, positive environment can benefit those experiencing anxiety by improving efficacy expectancies and other anxious cognitions.

Of the limited research available, one group of individuals who experience self-presentational concerns in exercise situations that might benefit from self-presentational efficacy interventions are older women (Martin et al., 2000). Older women who are inactive may not be exercising because their self-presentational efficacy expectations are low. That is, they may doubt their abilities to present themselves as competent exercisers and this may be the result of society's negative beliefs and attitudes about the appropriateness of activity involvement for older women (Khouri-Murphy & Murphy, 1992; O'Brien Cousins, 2000; Vertinsky, 1998). Additionally, inactive older women may have lower self-presentational efficacy due to inappropriate or uncomfortable exercise environments. For example, if older women prefer exercise settings in which the physique is de-emphasized (i.e., no mirrors, conservative attire is worn), and this

strengthens self-presentational efficacy, health promoters should consider the exercise environment when creating programs for senior women. By doing so, increased self-presentational efficacy may in turn increase exercise adherence. There is ample evidence indicating that exercise self-efficacy is a potent determinant of exercise behaviour in older adults (the higher the efficacy, the greater the participation; see, Martin & Sinden, 2001). Thus, it is reasonable to suggest that other types of efficacy--such as self-presentational efficacy--may also be a determinant of exercise behaviour. However, among older women, there have not been any studies of self-presentational efficacy in exercise settings. Little is known about factors that influence self-presentational concerns in exercise settings among this population and how self-presentation is related to other exercise-related thoughts and behaviours. Research in this area is deserving of attention as self-presentation concerns may be potential barriers to exercise thereby preventing older women from initiating and/or maintaining exercise and receiving the numerous benefits to be garnered from regular exercise participation.

The Present Investigation: A Study of Self-Presentational Variables in Exercise Settings Among Older Women

The purpose of the investigation is to examine self-presentation in exercise among older women; specifically, to determine how older women's self-presentational concerns such as social physique anxiety relate to behavioural factors (current activity level), psychological factors (exercise motives, attitudes towards exercise settings, impression, motivation, and self-presentational efficacy), and personal factors (age and body mass index). The investigation will follow a two-step process. First, the reliability and validity

of physique- and exercise-motive scales among older exercising women will be determined in Study 1. Those measures deemed statistically reliable and valid will then be used in Study 2. Second, Study 2 will examine the relationship between self-presentational concerns and exercise preferences by using techniques similar to Crawford and Eklund's two videotape studies (1994) of younger women, which manipulated the exercise environment by altering the clothing attire worn by exercise class participants (i.e., conservative versus revealing attire). It is hoped that results from this investigation will reveal potential self-presentational concerns and barriers to exercise for older women. Results will be discussed in relation to clinical relevance, and recommendations for future research will be made.

The Reliability and Validity of Measures of Physical Self-Perceptions and Exercise Motives Among Active Older Women: Study 1

The impetus for the present investigation was drawn from the area of self-presentation. Self-presentation (SP) or impression management (Leary 1995; Leary & Kowalski, 1990) refers to the processes individuals use to control the perceptions others have of them. Self-presentational processes can be seen among younger adults in exercise contexts (Leary, 1992). For example, concerns about making a favourable impression on others can motivate or demotivate an individual to attain a certain physical appearance, influence an individual's choice of exercise activity or produce an affective response to exercise such as social physique anxiety (SPA).

Social physique anxiety is the anxiety sometimes experienced in response to the perception that others are evaluating one's physique (Hart et al., 1989) and has been heavily researched in younger adults populations. Those with higher SPA tend to be female, younger in age, have a higher body mass index (BMI), prefer private exercise settings, and endorse SP motives for exercise (Martin, 2000). Conversely, individuals with lower SPA tend to be male, older in age, have a lower BMI, enjoy private and public exercise settings, and endorse non-SP motives for exercise (Martin, 2000). For some younger adults, self-presentational concerns and social physique anxiety can be significant barriers to exercise (Leary, 1992).

Do older adults experience similar self-presentational concerns with respect to exercise? A recently developed conceptual framework (Martin et al., 2000) categorized

older adults' SP concerns as falling under 3 general areas: concerns about (1) physical appearance, (2) being perceived as self-reliant, and (3) appearing psychologically competent. Preliminary data suggest that older adults are motivated to preserve a youthful appearance and the impression of being self-reliant and psychologically competent.

Exercise may be a means to control these impressions because regular physical activity has been shown to improve physical appearance (i.e., through weight loss and increased muscle tone), muscle strength, functional ability, psychological well-being, and health-related quality of life (Surgeon General's Report, 1996). In fact, Health Canada encourages physical activity participation to maintain independence and the ability to perform activities of daily living among older adults (Health Canada, 1999). Given the numerous psychological, physiological, and functional benefits associated with physical activity, it's reasonable to suggest that older women may exercise to achieve self-presentational outcomes associated with being perceived as psychologically competent, physically attractive, and self-reliant.

Keeping the potential self-presentational benefits of exercise for older adults in mind, an interesting question is whether older women exercise primarily for self-presentational motives (e.g., to improve physical appearance, tone) or non-self-presentational motives (e.g., to improve health and fitness). This question was addressed in the present study. Past research has indicated that the primary reason older women engage in exercise is to improve fitness and physical health (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000). Therefore, it was predicted that older women in this study would endorse non-SP motives for exercise such as health

and fitness, to a greater extent than SP motives such as weight control, physical appearance, and muscle tone.

As previously mentioned, self-presentation can produce an affective response to exercise in younger adults, namely social physique anxiety. However, little is known about the relation between SPA and exercise in the older adult population. Only one study in the SPA literature has examined older adults over the age of 64 years (postmenopausal women: Ransdell et al., 1998). This study found that less active older women had higher SPA than more active women. However, the relationship between SPA and exercise motives was not examined. Determining if older women with high SPA endorse self-presentational motives for exercise -- as do younger women with high SPA-- (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Frederick & Morrison, 1996; Hausenblas & Martin, 2000) may provide useful information for promoting exercise participation in older women with self-presentational concerns. Namely, interventions that highlight the health and fitness benefits of exercise may not enhance regular exercise participation in high SPA older women if their primary motives for exercise are self-presentational rather than health- and fitness-related. On the other hand, interventions that promote the physical appearance or self-presentational benefits of exercise may promote continued exercise engagement in this population of women with high self-presentational concerns. Given the need to understand older women's motives for exercise, this study also examined if SPA was related to various motives for exercise in older active women.

Another purpose of the present investigation was to determine the reliability and validity of physique- and exercise-related measures in a group of older active women.

Those measures deemed statistically reliable and valid could then be used in Study 2. The reliability of the scales was determined by calculating Cronbach's alpha coefficients; those measures and subscales failing to exceed the .70 alpha criterion (Nunnally, 1978) would not be considered reliable and would be eliminated from further analyses. To verify the construct validity of the scales, correlations between SPA and the subscales of the Reasons for Exercise Inventory (Silberstein et al., 1988), and Physical Self-Efficacy Scale¹ (Ryckman et al., 1982) were conducted. Consistent with previous research among younger adults (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Frederick & Morrison, 1996; Hausenblas & Martin, 2000), it was hypothesized that SPA would positively correlate with the strength of self-presentational motives for exercising (i.e., weight control, tone, and physical attractiveness). In other words, as SPA increased, so would the endorsement of self-presentational motives for exercise. Also based on research examining younger adults (Crawford & Eklund, 1994; Eklund & Crawford, 1994), it was predicted that the strength of non-self-presentational motives would not be related to SPA (i.e., health, fitness, mood, and enjoyment). Finally, as in previous literature (Katula, McAuley, Mihalko, & Bane, 1998; McAuley & Burman, 1993) it was predicted that SPA would negatively correlate with scores on the Perceived Physical Ability and Physical Self-Presentation Confidence subscales of the Physical Self-Efficacy Scale; as SPA increased, older women's perceived physical ability and physical self-presentation confidence would decrease.

As previously mentioned, much of the literature on SPA has focused on younger populations. Thus measures such as the Social Physique Anxiety Scale (Hart et al., 1989),

the Reasons for Exercise Inventory (Silberstein et al., 1988), and the Physical Self-Efficacy Scale (Ryckman et al., 1982) have not been widely used and validated in the population of interest. Moreover, given the limited research on SPA in older women, it is necessary to determine whether the Social Physique Anxiety Scale (Hart et al., 1989) is sensitive to measuring social physique anxiety in older women. To address this issue, the mean SPA score of the present sample was compared to those found in the literature for women and men of all ages.

Method

Participants

Forty older women between the ages of 56 and 81 ($M = 68.22$ years; $SD = 6.42$ years) participated in the study. At the time of testing, all participants were regular members of a community-based, seniors' exercise program which consisted of cardiovascular (e.g., treadmill walking and stationary cycling) and resistance-training exercises performed 2x/week. Active older women were chosen for the present investigation because participants for the study could be recruited from an exercise facility located in the same building as the testing centre thereby making participant availability and questionnaire administration expedient and convenient. The use of an active older sample was deemed appropriate as this study's purpose was to test the psychometric properties of various exercise-relevant measures. Furthermore, from a pragmatic perspective, testing sedentary or less active older women would require more laborious recruitment strategies and administration procedures than might be warranted

for a pilot study. Finally, by testing active older women in Study 1, the pool of less active older women required for Study 2 would not be depleted.

Measures

All measures, subscales, and items employed in the present investigation are provided in Appendix A.

Social Physique Anxiety Scale (SPAS). This 12-item self-report questionnaire (Hart et al., 1989) is designed to measure the construct of social physique anxiety (the anxiety individuals sometimes experience when others evaluate their physique). Using a 5-point scale, participants were asked to indicate the degree to which the 12 statements were true or characteristic of them with anchors of not at all (1), slightly (2), moderately (3), very (4), and extremely (5). A participant's score on the SPAS can range from 12 to 60, with a lower score indicating lower social physique anxiety. Statistical evidence indicates that the SPAS has good inter-item reliability in college-aged adults ($\alpha = .90$; Hart et al., 1989) and middle-aged adults (i.e., 45-64 years; $\alpha = .90$; McAuley et al., 1995), and acceptable test-retest reliability in post-menopausal women (i.e., 50-79 years; $r = 0.94$, $p < .0001$; Ransdell et al., 1998).

Reasons for Exercise Inventory (REI). The REI is a 24-item self-report inventory (Siberstein et al., 1988) which captures seven general reasons for exercising: Weight Control, Fitness, Mood Enhancement, Health, Attractiveness, Enjoyment, and Tone. All categories contain three items with the exception of Health, Fitness, and Mood which contains four. Participants rated each item on a 7-point scale with anchors of not at all important (1), moderately important (4), and extremely important (7). Scores on the REI

subscales can range from 3 to 21 for the Weight Control, Attractiveness, Enjoyment, and Tone subscales and from 4 to 28 for the Health, Fitness, and Mood subscales. Higher scores indicate greater endorsement of the particular reason for exercising. Research has indicated that the alpha coefficients in a group of college-aged men and women for the REI subscales range from .67 to .81, indicating adequate internal consistency (Silberstein et al., 1988). The REI has also been used in a sample of men and women 16 to 60 years of age, and the internal reliabilities of the subscales were acceptable ranging from $\alpha = .71$ to .85 (Tiggemann & Williamson, 2000). As no known study has employed the REI for women over the age of 60 years, further analyses of the statistical properties of the scale are warranted.

Physical Self-Efficacy Scale (PSE). The PSE scale (Ryckman et al., 1982) consists of 22 items and measures an individual's perception and confidence in his/her physical ability. Participants responded to each item by circling a number on a 6-point Likert scale with anchors strongly agree (1) and strongly disagree (6). There are two subscales in the inventory, a 10-item Perceived Physical Ability (PPA) subscale and a 12-item Physical Self-Presentation Confidence (PSPC) subscale. Items on the PPA subscale reflect an individual's perception of his/her physical competence. For example "I have excellent reflexes," and "I am not agile and graceful." The PSPC subscale contains items which reflect an individual's confidence in presenting his/her physical skills such as "I have physical defects that sometimes bother me," and "I am not concerned with the impression my physique has on others." Overall, the total score for a participant can range from 22 to 132 with higher scores indicating higher physical self-efficacy. Scores

on the PPA subscale can range from 10 to 60 with higher scores indicating higher perceived physical ability and scores on the PSPC subscale can range from 12 to 72 with higher scores indicating higher physical self-presentation confidence. The PSI scale has been shown to have good test-retest reliability in college-aged individuals (PSI $\alpha = .81$, PPA $\alpha = .84$, PSPC $\alpha = .74$; Ryckman, 1982). However in an elderly sample, the PSI subscales have been reported as having poor internal consistencies (PPA α range = .60-.68; PSPC α range = .29-.41; Stidwell & Rimmer, 1995). In addition, the PSI was employed in a sample of men and women ranging in age from 45 to 74 years (Godin & Shephard, 1985a) and alpha coefficients were not reported. Thus, further examination of the psychometric properties of this measure is required in older active females before it can be used in research.

Design

The study used a self-report, nonexperimental, cross-sectional design. Each participant completed the questionnaire measures (i.e., SPAS, REI, and PSE). The order of presentation was counterbalanced using a William's Square Design to prevent carry-over and order effects.

Procedure

A poster placed in the exercise facility and word-of-mouth among facility members served as recruitment strategies for this questionnaire study. Interested participants volunteered by placing their name and phone number in a confidential container. The researcher contacted individual participants and arranged a convenient time to participate in the study. Testing occurred in a private room and the experimenter

was available to answer any questions the participants had during the session. Prior to completing the questionnaires, the researcher provided a letter of information describing the study and the types of questions to be asked. Participants then completed an informed consent that highlighted anonymity, confidentiality, and their right to withdraw at any time. Subsequently, participants were instructed on how to complete each of the 3 questionnaires and were asked to answer carefully, honestly, and to visualize themselves in the various situations should they be novel or rarely experienced. Next, participants completed the questionnaires and at the end of the testing session were debriefed and thanked for their interest and time. Interestingly, during various testing sessions, many participants initiated discussions regarding problems with the scales and the content validity of some of the subscales. Information gathered from the conversations will be elaborated upon in the discussion section.

Results

Mean Social Physique Anxiety Scores: Study 1 Versus the Literature

As can be seen in Table 1, the mean SPA score obtained in the present investigation ($M\ SPA = 30.86$) falls within the range of scores obtained in other studies of men and women of all ages ($M\ SPA\ Range = 27.3-40.31$), and is consistent with scores found in other studies of older women. This result suggests that the SPA score obtained in the present sample is consistent with the literature and that the SPAS is a sensitive and effective tool for assessing social physique anxiety in older women exercisers.

Psychometric Properties of the Scales: Descriptive Statistics and Reliability Coefficients

Descriptive statistics for each of the four measures are presented in Table 2 and reliability coefficients for the measures and subscales are presented in Table 3. Overall, alpha coefficients were acceptable with the exception of the Health and Weight Control subscales of the RHE ($\alpha = .19, .62$, respectively) and the Physical Self-Presentation Confidence (PSPC) subscale ($\alpha = .58$) of the PSE which fell below the .70 criterion (Nunnally, 1978). Consequently, Health, Weight Control, and PSPC subscales were eliminated from further analyses.

Correlations with SPA: Construct Validity

As predicted, according to correlational analyses, the SPAS was negatively correlated with the PPA subscale ($r = -.38, p = .02$) of the PSE; participants with higher SPA had lower perceived physical ability. Also consistent with hypothesis, SPA was positively correlated with self-presentational reasons for exercise (i.e., Tone and Physical Attractiveness; $r_s = .368, .303, p_s < .05$, respectively), indicating that as endorsement of exercise for tone and attractiveness motives increased, SPA also increased. It was further predicted that endorsement of non-self-presentational motives (e.g., Fitness, Mood, Enjoyment) would not be related to SPA. Interestingly, contrary to prediction, Fitness, Mood, and Enjoyment subscales were positively correlated with SPA ($r_s = .285, .315, .277, p_s < .05$, respectively) suggesting that as SPA increased, so did the importance of exercising to improve fitness, mood, and enjoyment.

Are Fitness Motives More Important than Self-Presentation Motives?

To compare motives for exercise, subscale scores were standardized by dividing the mean subscale score by the number of items comprising each subscale (e.g., the mean

Fitness score was divided by 4, the mean Tone score was divided by 3). Next, a one-way ANOVA was conducted to determine whether older female exercisers engaged in physical activity primarily for fitness purposes as opposed to self-presentational purposes (e.g., Tone, Physical Attractiveness). The ANOVA indicated significant differences $F(4, 195) = 33.07, p < .0001$ across the REI subscales. As predicted, subsequent Bonferroni post hoc tests ($ps < .025$) revealed Fitness motives to be more important than self-presentational motives (e.g., Tone and Attractiveness).

Discussion

This study examined the reliability and validity of the Social Physique Anxiety Scale (Hart et al., 1989), Reasons for Exercise Inventory (Silberstein et al., 1988), and the Physical Self-Efficacy Scale (Ryckman et al., 1982) in a sample of older active women. Results revealed that the Social Physique Anxiety Scale (Hart et al., 1989) was sensitive to measuring social physique anxiety in older active women. In addition, with the exception of three subscales (Weight Control and Health from the REI, and the Physical Self-Presentation Confidence subscale of the PSE), the Social Physique Anxiety Scale, the Reasons for Exercise Inventory, and the Physical Self-Efficacy Scale appear reliable and valid when used in a sample of older women. However, as will be discussed, caution is warranted when using the Physical Self-Efficacy scale with older women. Finally, consistent with previous research, older active women endorsed non-self-presentational motives for exercise (i.e., fitness) more so than self-presentational motives such as tone and attractiveness. These results provide important information for future studies of

exercise-related outcomes in older women and are recommended for application for Study 2's study of less active older women.

To determine whether the Social Physique Anxiety Scale (Hart et al., 1989) was sensitive to measure social physique anxiety in older active women, the present sample's mean SPA score was compared to scores obtained from other studies of men and women of various ages. The mean SPA score obtained in the present study fell within the range of scores obtained from the literature and is consistent with scores found in other studies of older women. These results suggest that the Social Physique Anxiety Scale (Hart et al., 1989) is sensitive to social physique anxiety in this sample.

The reliability of the study measures was determined by calculating Cronbach's alpha coefficients. With the exception of three subscales (Weight Control and Health from the REI, and the Physical Self-Presentation Confidence subscale of the PSE), the Social Physique Anxiety Scale, Reasons for Exercise Inventory, and the Physical Self-Efficacy Scale were reliable. Specifically, overall scale reliability coefficients ranged from .79 to .86 and subscale coefficients ranged from .71 to .87.

An examination of the content validity of the items of the Health, Weight Control, and PSPC subscales may shed light on why these subscales were not reliable in this sample of active older women. Specifically, Health subscale items (see Appendix A) included a fitness-type item (i.e., "to improve my cardiovascular fitness") and terms that may have been difficult for participants to understand such as "physical well-being." Consequently, the participants may not have thought of these items in terms of health-related motives for exercise. Future studies failing to attain an appropriate alpha

coefficient for the Health subscale may consider dropping the fitness and physical well-being items in order to achieve a subscale of items with similar content and acceptable reliability.

With respect to the Weight Control items, anecdotal reports from the study participants revealed that many participants wanted to lose weight but were unable to, were aware that attaining a slim figure was unrealistic, and were not satisfied with their current weight. Consequently, the three Weight Control items (“I exercise to lose weight,” “I exercise to be slim,” “I exercise to maintain my current weight”) were conflicting and participants were unsure how to respond to these items. It is important to note however, that the unacceptable alpha coefficient and confusion reported with this subscale may also be due to the activity level of the participants. In other words, these women were regular exercisers and many had been members of the community facility for some time and may have already achieved a healthy weight for their body structure despite their body dissatisfaction. Thus, the Weight Control subscale may be reliable in other populations such as less active older women who may be overweight and are just starting to exercise to lose weight and to attain a slim figure.

Numerous interesting anecdotal reports were obtained with regards to the Physical Self-Presentation Confidence subscale of the PSE. In fact, in general, the PSI: questionnaire produced more questions and comments than any other measure used in Study 1. For example the item “I am never intimidated by the thought of a sexual encounter” was confusing and amusing to many participants. Was this encounter with a stranger, or their partner or husband? Additionally, participants did not understand the

item “athletic people do not receive more attention than me” because many of these participants did not consider their peers to be athletic or non-athletic. These are but two examples of items the participants found amusing, confusing, or irrelevant. When administering this measure, much time and effort was involved in ensuring that participants clearly understood the items and were able to answer the questions properly. Thus, caution is warranted when using this measure due to the possible age-inappropriateness of many of the items, and the time-consuming nature of completing the questionnaire properly. Furthermore, our research confirms earlier research using the PSE in older sedentary and active men and women which have failed to produce adequate alpha coefficients for the Physical Self-Presentation Confidence subscale (cf., Stidwell & Rimmer, 1995). Therefore, future studies wishing to assess physical self-presentation confidence in older women should consider modifying the PSE items to make them more age appropriate and to increase the reliability of the scale.

To verify the construct validity of the 3 measures used in Study 1, correlations between SPA and the REI motives (excluding Health and Weight Control subscales), and the Perceived Physical Ability subscale of the PSE were conducted. Consistent with hypothesis, self-presentational motives for exercise (i.e., Physical Attractiveness and Tone) were positively correlated with SPA; as SPA increased, endorsement of tone and attractiveness motives also increased. The second hypothesis, that non-self-presentational reasons for exercise (i.e., Fitness, Enjoyment, and Mood) would not correlate with SPA, was not supported. All three non-self-presentational motives were positively correlated with SPA; as endorsement of Fitness, Enjoyment, and Mood motives increased, SPA also

increased. The positive relationship between social physique anxiety and non-self-presentational motives for exercise may be explained by looking at the items that comprise the Reasons for Exercise Inventory (Silberstein et al., 1988) subscales. For example, one of the Fitness subscale items, "I exercise to improve my muscle tone," appears to capture a physical appearance or self-presentational characteristic (i.e., tone). Thus, participants with concerns regarding presenting their bodies in front of others may exercise to improve this aspect of their physical appearance or fitness. As well, the positive relationship between SPA and Mood motives might be explained by one of the Mood subscale items: "I exercise to cope with stress, anxiety." Participants with anxieties regarding presenting their physiques in front of others may use exercise as a strategy to reduce these self-presentational concerns. Finally, those who were concerned with making a positive impression on others (i.e., had higher social physique anxiety) may feel that exercising to "meet new people," "socialize with friends," and "have fun" (all items on the Enjoyment subscale of the Reasons for Exercise Inventory; Silberstein et al., 1988) contribute to creating a positive impression. Research among younger adults shows that a halo of positive characteristics--including those associated with being fun and outgoing--are in fact attributed to women who are regular exercisers (Martin, Sinden, & Fleming, 2000). Thus, when people are concerned about making a positive impression in an exercise context (i.e., when they have self-presentational concerns), they may find that interacting with other exercisers in a fun, social environment is conducive to creating the desired impression.

Collectively, the correlations between social physique anxiety and the REI subscales indicate that tone, attractiveness, fitness, enjoyment, and mood enhancement motives are important to women with high self-presentational concerns. Therefore, interventions that highlight self-presentational and/or non-self-presentational benefits of exercise may enhance regular exercise participation in older women with higher levels of social physique anxiety. Finally, as predicted, the Perceived Physical Ability subscale of the PSE was negatively correlated with SPA. As perceived physical ability increased, social physique anxiety decreased. Taken together, the correlations between SPA, REI motives, and PPA were, for the most part, in the hypothesized direction which suggests that these measures are valid in a sample of older active women.

While there was a positive relationship between the endorsement of self-presentational and non-self-presentational motives for exercise and social physique anxiety in this study, as predicted, an ANOVA and subsequent Bonferonni post hoc tests revealed that older active women in general endorsed non-self-presentational motives such as fitness more than self-presentational motives for exercise (i.e., attractiveness, tone). This finding is consistent with previous research examining older women's reasons for exercising (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000). As previously mentioned, the numerous physiological and psychological benefits of physical activity enable older adults to achieve independence and improve their ability to perform activities of daily living. Therefore, it is not surprising that older women are motivated to exercise to improve their overall fitness and to maintain a healthy lifestyle. In doing so, they are able to present themselves as self-

reliant and psychologically competent individuals--two reasons why older adults are motivated to impression manage (Martin et al., 2000). It seems however, that these self-presentational motives are secondary to fitness and health motives for exercise.

In conclusion, based on the results of the reliability and validity analyses, it is recommended that the Social Physique Anxiety Scale, and the Reasons for Exercise Inventory are appropriate for future investigations, specifically in Study 2. The Physical Self-Efficacy Scale is not recommended for future use due to concerns regarding reliability of the PSPC subscale, content validity, age-appropriateness of certain items of both the PPA and PSPC subscales, and the time-consuming nature of administering the questionnaire. By using the REI and SPAS in future studies, it is hoped that to questions may be answered regarding self-presentational factors which prevent or promote exercise in sedentary and active older women.

Table 1

Study 1: Mean Social Physique Anxiety Scores in the Literature

Reference	Gender	Age (years)	Descriptor	<u>M</u> SPA score*
McAuley & Berman (1993)	F	12-18	gymnasts	40.31
Hart et al. (1989)	F	college	fitness centre members	37.9
Eklund & Crawford (1994)	F	18-23	highly active	37.31
McAuley et al. (1995)	F	45-64	sedentary	38.93
Randsell et al. (1998)	F	50-79	post-menopausal	27.3
Study 1	F	56-81	regularly active	30.86
Hart et al. (1989)	M	college	fitness centre members	30.2
Schwerin et al. (1996)	M	17-49	body builders	30.21
Lantz et al. (1997)	M	18-60	students	29.8
McAuley et al. (1995)	M	45-64	sedentary	33.47

Note. M = male, F = female, M = Mean. SPA = Social physique anxiety. *All SPA scores reported here used the 12-item Social Physique Anxiety Scale (Hart et al., 1989); scores can range from 12–60 with higher scores indicating higher social physique anxiety.

Table 2

Study 1: Descriptive Statistics for the Social Physique Anxiety Scale, Reasons for Exercise Inventory, and Physical Self-Efficacy Scale and Subscales

Measures and Subscales	<u>M</u>	<u>SD</u>	Observed Range
Social Physique Anxiety Scale	30.86	7.3	16-48
Reasons for Exercise Inventory			
Health	26.75	1.81	22-28
Weight Control	12.46	4.01	3-21
Fitness	25.3	3.71	15-28
Mood	17.55	6.75	7-28
Attractiveness	9.40	3.79	3-18
Enjoyment	11.08	4.78	3-21
Tone	11.14	3.92	3-18
Physical Self-Efficacy Scale	90.32	14.5	59-120
Perceived Physical Ability	39.73	8.58	20-55
Physical Self-Presentation Confidence	53.58	8.08	36-67

Note. M = Mean, SD = Standard Deviation

Table 3

Study 1: Reliability Coefficients for the Social Physique Anxiety Scale, Reasons for Exercise Inventory, and Physical Self-Efficacy Scale and Subscales

Measures and Subscales	Alpha Coefficients
Social Physique Anxiety Scale	.85
Reasons for Exercise Inventory	.86
Health	.19*
Weight Control	.62*
Fitness	.87
Mood	.83
Attractiveness	.72
Enjoyment	.73
Tone	.71
Physical Self-Efficacy Scale	.79
Perceived Physical Ability	.79
Physical Self-Presentation Confidence	.58*

Note. *eliminated from further analyses due to inadequate alpha coefficients (i.e., $\alpha < .70$)

Table 4

Study 1: Correlations Between Social Physique Anxiety and the Reasons for Exercise Inventory Subscales, and Perceived Physical Ability Subscale

Measures and Subscales	Social Physique Anxiety
Reasons for Exercise Inventory	
Attractiveness	.303*
Tone	.368**
Fitness	.285*
Enjoyment	.277*
Mood	.315*
Physical Self-Efficacy Scale	
Perceived Physical Ability	-.377**

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

T-Shirts and Pants or Sleeveless Shirts and Shorts? A Study of Self-Presentational Variables in Exercise Settings Among Older Women: Study 2

Older women often have inaccurate perceptions concerning the benefits (Khoury-Murphy & Murphy, 1992) and the risks (O'Brien Cousins, 2000) of exercise participation among age-similar peers. For example, one study found that many older women refused to engage in strength training because they believed it would masculinize their bodies (Khoury-Murphy & Murphy, 1992). Another reported extreme inaccurate beliefs about exercise such as the performance of trunk curl-ups would result in "snapping my neck" and "death" (O'Brien-Cousins, 2000, p. 289). Such inaccurate perceptions may lead older women to believe that they have nothing to gain from exercise. Consequently, misperceptions regarding exercise may precipitate sedentary behaviour, thus preventing older women from achieving the numerous physiological and psychological benefits of regular physical activity.

Yet for those older women who do engage in physical activity, research indicates that improving health and physical fitness are the primary motives for exercise participation, whereas enhancing physical appearance is considered to be of lesser importance (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000). However, as the results of Study 1 indicated, among active older women, as social physique anxiety increased (i.e., the anxiety a person sometimes feels in response to the perception that others are evaluating one's physique; Hart et al., 1989), endorsement of physical appearance motives for exercise (specifically, improvements in

muscle tone and physical attractiveness) also increased. These results indicate that being physically active to improve appearance is important to those older women who are concerned with presenting their bodies in front of others. Thus, for some older women, self-presentation concerns may play a role in the motivation to exercise.

Another self-presentational variable that may be related to exercise motivation is impression motivation. Impression motivation refers to a person's desire to create a specific impression or image in the minds of others (Leary & Kowalski, 1990). In an exercise context, that desired image may be of a healthy, physically fit, competent exerciser. Given the results of Study 1, one might predict that impression motivation would also be positively correlated with self-presentational motives for exercise such as improved muscle tone, weight control, and attractiveness as well as health and fitness motives because improvements in health and fitness would be conducive to creating the "exerciser image." As there has been no previous investigation of the relation between impression motivation and exercise motives, exploration of these variables was included in the present investigation.

In addition to playing a role in older women's motives for exercising, self-presentational variables such as social physique anxiety may also influence how older women respond to the exercise environment (i.e., their desire to exercise in specific exercise settings). Specifically, research suggests that older women who are concerned about decorum (i.e., behaviour that conforms to established standards for proper behaviour) or the appropriateness of particular behaviours, may not participate in certain physical activities (Martin et al., 2000). For example, in one study, researchers had

difficulty recruiting older adults for an exercise training study due to self-presentational concerns about the clothing attire that would be worn during exercise (Sidney & Shephard, 1976). The seniors who declined to participate felt that wearing exercise clothing such as t-shirts and gym shorts would be embarrassing at their age. Thus, it appears that some older adults view exercise clothing to be inappropriate for older persons and may have self-presentational concerns about wearing exercise attire (Martin et al., 2000). An interesting question is whether older women have more favourable attitudes in general toward an exercise environment in which participants wear “non-exercise” clothing that does not highlight the physique (i.e., t-shirts and pants) versus an exercise environment in which participants wear traditional exercise clothing that highlights the physique (i.e., sleeveless shirts and shorts). Another interesting question is whether self-presentational concerns about one’s physique (i.e., social physique anxiety) moderate older women’s attitudes toward exercising in environments where physique-salient and non-physique salient clothing is worn.

Research examining self-presentation and attitudes toward exercise clothing environments in younger women has found interesting results. In Crawford and Eklund’s (1994) study, moderately active college-aged women were shown videos of an aerobics exercise class in which the class members wore either (a) conservative attire (i.e., shorts and t-shirts) which did not highlight the physique, or (b) aerobics, flashy attire (i.e., tights and thong leotards) which emphasized the physique. Overall, participants had a more favourable attitude towards the conservative attire videotape. However, social physique anxiety was related to the young women’s attitudes such that women with higher social

physique anxiety had more favourable attitudes towards the conservative attire video than women with lower social physique anxiety, but women with lower social physique anxiety had more favourable attitudes towards the revealing attire video compared to women with higher social physique anxiety. Thus, self-presentational concerns among moderately active women influence their preference for conservative versus revealing attire exercise environments.

A follow-up study by Eklund and Crawford (1994) of highly active young women produced conflicting results with their earlier study of moderately active young women (Crawford & Eklund, 1994). In the follow-up, while there was a modest overall preference for the conservative attire video, social physique anxiety did not moderate the relationship between the video observed and subsequent attitudes toward the exercise settings. These results suggest that among highly active women, concerns about presenting one's body in front of others (i.e., social physique anxiety) had no influence on their preferences for physique-salient and non-physique-salient environments. Thus, it appears that the different outcomes of Crawford and Eklund's two studies may be due to the different physical activity levels of the participants such that social physique anxiety only moderates exercise preferences for less active women (i.e., those with higher physique anxiety preferred the conservative attire environment; Crawford & Eklund, 1994) but not for highly active women (i.e., no relationship between social physique anxiety and exercise setting preference; Eklund & Crawford, 1994).

Older women's preferences for conservative versus revealing attire exercise environments have not been examined. Do older women also prefer a more conservative

attire exercise environment? Are physical activity level and self-presentational variables such as social physique anxiety important factors in older women's decisions to exercise in certain environments? The present investigation addressed these issues among older women. Specifically, similar to Crawford and Fiklund's two videotape studies (1994), older women were shown a videotape of age-similar peers walking for exercise. In one video, exercisers wore conservative attire (i.e., t-shirts and pants), in the other video, exercisers wore revealing clothing attire (i.e., sleeveless shirts and shorts). The moderating effects of social physique anxiety and physical activity level on participants' attitudes toward the exercise settings were examined.

In addition to influencing older women's attitudes toward the exercise clothing attire videos, self-presentational variables may also be influenced by exposure to the clothing attire videos. In particular, older women's self-presentational efficacy for exercise may be affected by watching a video of other older adults exercising. Self-presentational efficacy is defined as the subjective probability or confidence in one's ability to convey a particular impression on others (Maddux et al., 1988). With respect to exercise, people with high self-presentational efficacy are confident that they can present themselves as healthy, fit, competent exercisers.

Why might exposure to the video influence self-presentational efficacy? According to Self-Efficacy Theory (Bandura, 1977), there are four sources of self-efficacy expectations: past-performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal. Each source provides an individual with information which in turn can enhance or reduce self-efficacy. Although past performance

accomplishments are the most potent source of efficacy expectations we suspect that exposure to a videotape could serve as a vicarious experience (the second most potent source of efficacy expectations) that would influence self-presentational efficacy expectancy. In other words, watching the conservative clothing videotape could increase self-presentational efficacy and watching the revealing clothing videotape could decrease self-presentational efficacy. Additionally, given that social physique anxiety and physical activity level have been found to relate to self-presentational efficacy in exercise settings (Gammage et al., 2001b), it was of interest to determine whether these variables moderated the relationship between the video the participants watched and their self-presentational efficacy.

In summary, the purpose of the present investigation was to examine the role of self-presentational variables in older women's exercise motives and exercise setting preferences. Specifically, this study examined: (a) the relationship between exercise motives, social physique anxiety, and impression motivation, (b) whether older women have more favourable attitudes towards a conservative attire exercise environment versus the revealing attire exercise environment, and (c) if watching an exercise setting video acts as a vicarious experience that influences self-presentational efficacy for exercise. In addition, the moderating effects of social physique anxiety and physical activity level on older women's attitudes toward the videos and self-presentational efficacy were examined.

Hypotheses

1. Exercise motive correlations. Social physique anxiety (Crawford & Eklund, 1994) and impression motivation will positively correlate with self-presentational motives for exercise (i.e., tone, attractiveness, and weight control). Social physique anxiety will not correlate with non-self-presentational motives for exercise (i.e., health, fitness, mood, and enjoyment; Crawford & Eklund, 1994). However, impression motivation will positively correlate fitness and health motives because impression motivation assesses one's desire to be perceived as a healthy, fit individual and older women in general are motivated to exercise primarily for health and fitness outcomes (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000). But, impression motivation will not correlate with enjoyment and mood motives for exercise.

2. Social physique anxiety correlations. Social physique anxiety will positively correlate with body mass index (BMI; Hausenblas & Martin, 2000) and impression motivation (Gammage et al., 2001a; Gammage 2001b) and negatively correlate with age (McAuley et al., 1995), physical activity (Ransdell et al., 1998), and self-presentational efficacy pre-videotape (Gammage et al., 2001b).

3. Attitudes toward exercise setting correlations. Attitudes toward exercise settings (ATES) scores for the conservative video will positively correlate with BMI (cf. Eklund & Crawford, 1994) and impression motivation. However, attitudes toward the conservative setting will not correlate with self-presentational efficacy pre-videotape because there is no reason to believe that women with higher pre-self-presentational

efficacy will enjoy the conservative video differently than women with lower pre-self-presentational efficacy. Attitudes toward exercise settings (ATES) scores for the revealing video will positively correlate with self-presentational efficacy pre-videotape because it is believed that women who are less confident in their ability to present themselves as competent exercisers will have less favourable attitudes toward the revealing setting compared to women with higher pre-self-presentational efficacy. Attitudes toward the revealing attire videotape will negatively correlate with BMI (cf. Eklund & Crawford, 1994) and impression motivation

4. Exercise motives. Health and fitness motives for exercise will be more important than self-presentational motives for exercise (i.e., tone, attractiveness, and weight control; Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000).

5. Predicting attitude toward the exercise settings. Overall, participants will have a more favourable attitude towards the conservative video than the revealing video (Crawford & Eklund, 1994; Eklund & Crawford, 1994). Social physique anxiety (SPA) and physical activity (PA) will moderate the effects of the video on participants' attitudes towards the exercise settings (cf. Crawford & Eklund, 1994; Eklund & Crawford, 1994) such that in the conservative video condition, those with higher SPA will have more favourable attitudes than those with lower SPA. But in the revealing condition, those with higher SPA will have less favourable attitudes than those with lower SPA. Physical activity will function as a moderator such that in the conservative condition, there will be

no association between PA and ATES. But in the revealing condition, those who are more physically active will have more favourable attitudes than those who are less active.

6. Predicting changes in self-presentational efficacy. Overall, self-presentational efficacy post-videotape will be greater for participants who watched the conservative attire video than for those who watched the revealing attire video (Gammage et al., 2001c). Social physique anxiety (SPA) and physical activity (PA) will moderate the relationship between the video observed and participants' post-self-presentational efficacy scores (Gammage et al., 2001b) such that in the conservative video condition, those with higher SPA will have higher post-self-presentational efficacy than those with lower SPA. But in the revealing condition, those with higher SPA will have lower post-self-presentational efficacy than those with lower SPA. Physical activity will function as a moderator such that in the conservative condition, there will be no association between PA and post-self-presentational efficacy. But in the revealing condition, those who are more physically active will have higher post-self-presentational efficacy than those who are less active.

Method

Participants

Eighty-one community dwelling older women between the ages of 53 and 84 years ($M = 70.85$ years; $SD = 6.46$ years) participated in the study. In order to be enrolled in the study, interested participants had to meet the following inclusion criteria: (1) able to function without the use of an assistive device (e.g., walking without a cane, walker, wheelchair) and (2) not a current member of the MacSenior or MacTurtle exercise

programs. All participants were at least somewhat physically active on a regular basis; weekly leisure-time exercise ranged from mild to strenuous.

Participants were recruited from the Hamilton and Waterloo areas ($n = 51$; $n = 30$, respectively). By recruiting from multiple areas, it was hoped that a greater number of participants with varying exercise histories would be recruited. In the Hamilton region, participants were mainly recruited from a database of older adults who previously participated in research for McMaster University--the Seniors Helping Advance Research Excellence (SHARE) volunteer research group. Women were contacted via the telephone and were screened for the inclusion criteria (see above). The researcher also encouraged SHARE members to invite any female friends who met the inclusion criteria and who were interested in the study to participate along with them. A poster placed in a church and word-of-mouth among the Department of Kinesiology, McMaster University, also served as recruitment strategies for the Hamilton-area testing. Interested participants were contacted by phone and a time for testing was arranged in the same manner mentioned above, again participants were encouraged to bring eligible friends to participate and were tested at the same time. Recruitment of participants in the Waterloo-area proceeded in a different manner. Posters were placed in local recreation, community, and YMCA facilities and a brief seminar was given informing older women of the study. Interested participants then arranged a convenient time for testing with the researcher at the facility where they heard about the study. (Recruitment and testing of participants in the Hamilton and Waterloo areas was conducted by two researchers, Adrienne R. Sinden and Jennifer Angove, respectively².)

Measurements and Materials

All measures employed in the present investigation are provided in Appendix B.

Body mass index (BMI). Body Mass Index was used to determine an estimation of body size (Kaplan, Sallis, & Patterson, 1993); participants were asked to provide an estimation of their height and weight. Subsequently, BMI was calculated using the following formula: $BMI = kg/m^2$.

Level of physical activity engagement (PA). To assess the level of participants' physical activity the Godin Leisure-Time Exercise Questionnaire (GLTEQ; Godin & Shephard, 1985b) was used. Participants were asked to indicate how many times, on average, they engaged in: strenuous exercise (heart beats rapidly); moderate exercise (not exhausting); and mild exercise (minimal effort) for more than 15 minutes in their spare time, over the past 7 days. Examples of each type of exercise were provided; for the present investigation, the original examples of activities were modified to be age-relevant (i.e., for older individuals). Specifically, activities from the light, moderate, and strenuous sport and recreation categories of the Physical Activity Scale for the Elderly (PASE; Washburn, Smith, Jette, & Janney, 1992) were borrowed. For example, golf without a cart and doubles tennis were listed as moderate exercises instead of alpine skiing and volleyball. Participants' weekly activity frequencies were then multiplied by metabolic equivalents (METs) and summed to obtain a score using the formula: Total weekly leisure activity = (9 METs x # of strenuous bouts in a week) + (5 METs x # of moderate bouts in a week) + (3 METs x # of mild bouts in a week). (METs are used to index the intensity of activities, 1 MET is equal to resting energy expenditure, 9 METs are equal to

nine times the resting expenditure [Sallis & Owen, 1999].) Scores on the GLTEQ have a lower limit of zero and no upper limit. Higher scores indicate greater weekly expenditure of energy or greater total leisure-time activity. Statistical evidence indicates that the GLTEQ has acceptable test-retest reliabilities for healthy adults ($r = .94$, $r = .46$, $r = .48$, $r = .74$, $p < .05$, for strenuous, moderate, mild, and total score, respectively; Godin & Shephard, 1985b).

Social Physique Anxiety Scale (SPAS). This 12-item self-report questionnaire (Hart et al., 1989) is designed to measure the construct of social physique anxiety (the anxiety individuals sometimes experience when others evaluate their physique). Using a 5-point scale, participants were asked to indicate the degree to which the 12 statements were true or characteristic of them with anchors of not at all (1), slightly (2), moderately (3), very (4), and extremely (5). A participant's score on the SPAS can range from 12 to 60, with a lower score indicating lower social physique anxiety. Statistical evidence indicates that the SPAS has good inter-item reliability in college-aged adults ($\alpha = .90$; Hart et al., 1989) middle-aged adults (i.e., 45-64 years; $\alpha = .90$; McAuley et al., 1995), and active older women (i.e., 56-81 years, $\alpha = .85$; Study 1) and acceptable test-retest reliability in post-menopausal women (i.e., 50-79 years; $r = 0.94$, $p < .0001$; Ransdell et al., 1998).

Reasons for Exercise Inventory (REI). The REI is a 24-item self-report inventory (Silberstein et al., 1988) which captures seven general reasons for exercising: Weight Control, Fitness, Mood Enhancement, Health, Attractiveness, Enjoyment, and Tone. All categories contain three items with the exception of Health, Fitness, and Mood which

contains four. Participants rated each item on a 7-point scale with anchors of not at all important (1), moderately important (4), and extremely important (7). Scores on the REI subscales can range from 3 to 21 for the Weight Control, Attractiveness, Enjoyment, and Tone subscales and from 4 to 28 for the Health, Fitness, and Mood subscales. Higher scores indicate greater endorsement of the particular reason for exercising. Research has indicated that the alpha coefficients in a group of college-aged men and women for the REI subscales range from .67 to .81, indicating adequate internal consistency (Silberstein et al., 1988). The REI has also been used in a sample of men and women 16 to 60 years of age, and the internal reliabilities of the subscales were acceptable ranging from $\alpha = .71$ to .85 (Tiggemann & Williamson, 2000). Furthermore, the reliability coefficients from Study 1's sample of active women between the ages of 56 and 81 years indicated that with the exception of the Health and Weight Control subscales, the reliability coefficients for the subscales were acceptable ranging from $\alpha = .71$ to .87.

Impression motivation in exercise (IM). Using the 4-item Self-Presentational Concerns in Exercise scale (SPCE; Gammage et al., 2001a), the construct of impression motivation in exercise settings was measured. Impression motivation in exercise refers to an individual's desire to present him/herself as a healthy, fit, exerciser. This self-report questionnaire asks participants to rate items such as "I try to appear toned and fit to others" on a 7-point Likert scale with anchors of strongly disagree (1) and strongly agree (6). A participant's score on the SPCE can range from 4 to 24, with a lower score indicating lower impression motivation. Research indicated acceptable reliability of this scale in college-aged women ($\alpha = .89, .83$; Gammage et al., 2001b; 2001c, respectively)

and a sample of college-aged women and men ($\alpha = .87$; Gammage et al., 2001a).

However, there has been no published report providing the statistical properties of the Self-Presentational Concerns in Exercise scale (Gammage et al., 2001a) in other age groups, such as older women.

Self-presentational efficacy in exercise (SPE). To measure an individual's confidence in his/her ability to present his/herself as a competent exerciser, the 5-item Self-Presentational Efficacy Expectancy scale for exercise (SPEE; Gammage et al., 2001b; 2001c) was used. This self-report questionnaire requires participants to think about themselves exercising (in the case of the present study, participants were asked to think about walking with a group of older adults) and to rate the 5 items on an 11-point scale with anchors of 0% not at all confident and 100% completely confident. Examples of items included "I am confident that other group members will think that I am coordinated" and "other group members will think I have good stamina." A participant's score on the SPEE can range from 0 to 500, with a lower score indicating lower self-presentational efficacy. Reliability of this scale among college-aged females (Gammage et al., 2001b) and a small pilot group of older women ($N = 9$, aged 45-75 years) resulted in acceptable alpha coefficients $\alpha = .92, .81$, respectively.

Modified Attitudes Toward Exercise Settings Questionnaire (ATES). To assess participants' attitudes towards two exercise settings (conservative and revealing clothing attire environments) an 8-item self-report questionnaire was employed. The questionnaire was a modified version of the 5-item measure used in Eklund and Crawford's study (1994). The 5-item questionnaire required participants to rate items such as "This would

be a good group to exercise with” and “I would fit in with this exercise class” (see Appendix B, ATES questionnaire, items 1-5) on a 6-point scale with anchors of not at all (1) and extremely (5). The reliability of the 5-item ATES was acceptable in college-aged women (α conservative environment = .88, α revealing environment = .85; Eklund & Crawford, 1994).

However, as the reliability of the 5-item ATES among older women is not known, a pilot study was conducted ($N = 9$ females, aged 45 to 75 years) to test its psychometric properties. In addition to the 5-item ATES questionnaire (Eklund & Crawford, 1994) 3 other conceptually similar items, related to older adults’ attitudes towards exercise settings, were tested (see Appendix B, ATES questionnaire, items 6-8). For example, pilot participants were asked whether “I would talk with members of the group” and whether “I would have coffee/lunch with members of the group.” Again, participants rated the items in the manner mentioned above. Results indicated that the internal consistency of the 5-item ATES questionnaire was not acceptable for both exercise environments (see “Stimulus materials” for descriptions of the different exercise environments; α conservative environment = .40, α revealing environment = .16). However, with the addition of the 3 conceptually similar items, the reliability coefficients for the 8-item modified ATES questionnaire for both environments were acceptable (α conservative environment = .80, α revealing environment = .74). Thus, the 8-item ATES questionnaire was used in the present investigation. A participant’s score on the 8-item ATES questionnaire can range from 8 to 40 with higher scores indicating more favourable attitudes towards a particular exercise setting.

Stimulus materials. Two videotapes were created that showed adults over 60 years of age, walking for exercise in an aerobic dance studio. Similar to Crawford and Eklund's (1994) video stimuli, the duration of the videotapes was approximately 2 minutes and consisted of a small group of exercisers ($N = 10$) which included an older female "instructor" and one male. The exercise group was recruited from a community-based, seniors' exercise facility where members walked on treadmills as part of the exercise program. For the conservative attire videotape, the exercise group wore t-shirts and pants (i.e., physique non-salient clothing) and for the revealing attire videotape, the exercise group wore sleeveless shirts and shorts (i.e., physique salient clothing).

To determine whether each videotape was identical in every regard except for the manipulation of the clothing worn by the exercisers, a pilot study was conducted ($N = 9$ females, aged 45-75 years). The results of this pilot study indicated that overall, exercise class members in the conservative and revealing attire videotapes were perceived as seniors and that the clothing worn by the exercisers was the most salient difference between the videos. Specifically, the most revealing attire was worn by exercisers in the sleeveless shirts and shorts videotape. For additional details regarding the pilot study and results see Appendix C.

Design

The study used a between-subjects, self-report, cross-sectional design. Participants completed a battery of questionnaires and were randomly assigned to watch either the conservative or revealing attire videotape. After watching the video, participants completed another booklet of questionnaires.

Procedure

Eligible and interested participants recruited in the Hamilton-area arranged a convenient time to be tested either at the McMaster University laboratory or in the comfort of their home (if they had a television and video cassette recorder). As some participants brought eligible and interested friends to participate with them, some participants were tested in small groups of 2-3 people. Eligible and interested participants recruited from the Waterloo-area arranged for a convenient time to be tested at the facility where they were informed about the study (i.e., recreation, community, or YMCA facility). For convenience, some participants were tested in small groups of 2-4 people.

Testing of the participants, whether at the university, in the privacy of their home, or at the community-run facilities, proceeded in the same fashion. Prior to conducting the study, an experimenter provided a letter of information describing the study and the types of questions the participants would be asked. Participants then completed an informed consent that highlighted anonymity, confidentiality, and their right to withdraw at any time. Participants were told that the experimenter was available to answer any questions the participants had during the session. Next, participants were instructed on how to complete the first pre-test booklet of questionnaires and were asked to answer carefully, honestly, individually (if in a group), and to visualize themselves in the various situations should they be novel or rarely experienced.

The pre-test booklet of questionnaires required participants to first indicate their age, height, and weight, and complete the Godin Leisure-Time Exercise Questionnaire. The order of presentation of the remaining measures in pre-test booklet (the Social

Physique Anxiety Scale, Reasons for Exercise Inventory, Impression Motivation, and Self-Presentational Efficacy [pre-videotape]) was counterbalanced using a William's Square Design to prevent carry-over and order effects. After completing the pre-test questionnaire booklet, participant then watched either the conservative or revealing attire videotape ($n = 39$, $n = 42$, respectively). Random assignment of the videotape was determined immediately prior to the testing session with the stipulation that there were approximately the same number of participants in each condition. For those participants that were tested in small groups, all participants were assigned to the same condition.

After watching the video, participants completed the post-test booklet of questionnaires which consisted of the Attitudes Toward Exercise Settings questionnaire and Self-Presentational Efficacy (post-videotape). Again, participants were asked to answer the questions carefully, honestly, and without discussion among other participants. The order of presentation of the questionnaires was counterbalanced to prevent order and carry-over effects. At the end of the testing session, participants were debriefed and thanked for their interest and time. As well, participants recruited from the Hamilton-area who were not members of the SHARE volunteer group were provided with the opportunity join the research team database.

Results

Reliability Coefficients of the Scales

The reliability of the scales was determined by calculating Cronbach's alpha coefficients (see Table 5). Those exceeding the .70 alpha criterion were considered reliable (Nunnally, 1978). With the exception of two subscales (Tone and Attractiveness

from the REI), the measures were reliable. However, the alpha coefficient for the Tone Subscale was acceptable at $\alpha = .75$ when the item “I exercise to alter a specific area of my body” was removed. Similarly, the alpha coefficient for the Attractiveness Subscale was acceptable at $\alpha = .79$ when the item “I exercise to improve my appearance” was removed. As a result, subsequent analyses using the Tone and Attractiveness subscales do not include the items mentioned above. Thus, overall scale reliabilities ranged from $\alpha = .86$ to .97 and subscale coefficients ranged from $\alpha = .72$ to .85.

Descriptive Statistics

The mean, standard deviation, and observed range for each scale and subscale are presented in Table 6.

Correlation Matrices

One-tailed Pearson product moment correlation coefficients were calculated to test the hypotheses regarding the relationships between the study variables.

Exercise motive correlations (Table 7). While it was predicted that social physique anxiety would be positively correlated with self-presentational motives for exercise (i.e., tone, attractiveness, and weight control: Hypothesis 1), social physique anxiety was positively correlated with only two self-presentational motives for exercise, tone ($r = .307, p < .05$) and weight control ($r = .211, p < .05$); as social physique anxiety increased, endorsement of exercise for tone and weight control motives increased. Contrary to hypothesis, social physique anxiety was correlated with two non-self-presentational motive for exercise, fitness ($r = -.261, p < .05$) and mood ($r = .189, p < .05$).

.05); as social physique anxiety decreased, endorsement of fitness motives increased and the endorsement of mood motives decreased.

In partial support of Hypothesis 1, impression motivation was positively correlated with two of the three self-presentational motives for exercise--tone and physical attractiveness ($r_s = .277, .309$; $p_s < .05$, respectively). As the desire to present oneself as a competent exerciser increased, endorsement of tone and attractiveness motives also increased. Also consistent with Hypothesis 1, impression motivation was positively correlated with health ($r = .295$, $p < .01$), and fitness motives for exercise ($r = .289$, $p < .01$); as endorsement of health and fitness motives increased, impression motivation increased. Contrary to hypothesis, impression motivation was positively correlated with enjoyment motives ($r = .406$, $p < .01$); as impression motivation increased, endorsement for enjoyment motives increased.

Social physique anxiety correlations (Table 8). Consistent with Hypothesis 2, social physique anxiety was positively correlated with BMI ($r = .421$, $p < .01$); as BMI increased, social physique anxiety increased. However, contrary to prediction, social physique anxiety was not positively related to impression motivation ($r = -.022$, $p > .05$). Also contrary to prediction, social physique anxiety was not negatively related to age or physical activity ($r_s = -.012, -.165$; $p_s > .05$, respectively). However, as predicted, social physique anxiety was negatively correlated with pre-self-presentational efficacy for exercise ($r = -.476$, $p < .01$); as physique anxiety increased, pre-self-presentational efficacy decreased.

Attitude toward exercise setting correlations (Table 9). Consistent with Hypothesis 3, attitude toward the conservative attire video (ATES-C) was positively correlated with BMI ($r = .326, p < .05$) and impression motivation ($r = .301, p < .05$): as body mass index and impression motivation increased, attitudes toward the conservative attire setting increased. Also consistent with hypothesis, pre-self-presentational efficacy was not correlated with attitudes toward the conservative attire videotape ($r = .057, p > .05$) indicating that strength of pre-self-presentational efficacy was not related to ATES-C. With respect to the revealing attire video, pre-self-presentational efficacy was positively correlated with ATES-R scores ($r = .341, p < .05$): women who had stronger pre-self-presentational efficacy had more favourable attitudes toward the revealing attire video. However, contrary to prediction, BMI and impression motivation were not negatively correlated with ATES-R ($r = .062, .126; ps > .05$).

Are Fitness and Health Motives More Important than Self-Presentational Motives?

To address Hypothesis 4, motives for exercising were compared. To do this, subscale scores from the Reasons for Exercise Inventory (Silberstein et al., 1988) were standardized by dividing the mean subscale score by the number of items comprising each subscale. This was done because the subscales contained different numbers of items. Next, a one-way ANOVA was conducted to determine whether older females engaged in physical activity primarily for health and fitness motives or for self-presentational motives (e.g., tone, physical attractiveness, weight control). The ANOVA indicated significant differences $F(6, 552) = 74.39, p < .0001$ across the REI subscales. As predicted, subsequent Bonferroni post hoc tests ($ps < .002$) revealed that health motives

were more important than self-presentational motives for exercise (i.e., tone, attractiveness, and weight control) and all other non-self-presentational motives for exercise (i.e., fitness, mood, and enjoyment; see Table 6 for standardized means). Additionally, fitness motives were the second most important motives; they were more highly endorsed than all self-presentational and all non-self-presentational motives for exercise, except health (see Table 6 for standardized means).

Predicting Attitude Toward the Exercise Settings

A hierarchical multiple regression analysis was performed to test Hypothesis 5: participants will have more favourable attitudes towards the conservative attire videotape and social physique anxiety and physical activity will moderate the relationship between the video observed and older women's attitude toward the exercise settings. The dependent variable for the analysis was the attitude towards the exercise settings (ATES) ratings. The order of entry of the variables into the regression analysis is presented in Table 10. First, BMI and physical activity were entered as a block to control for individual differences in these variables which could account for variance in ATES (positive correlations were obtained between BMI and ATES-C [$r = .326, p < .05$] and PA and ATES-R [$r = .474, p < .01$]), and to test for a main effect of physical activity. Next, video condition was dummy-coded (conservative attire = 1; revealing attire = 2) and entered to test for a main effect of the video observed on attitudes toward exercise settings. Third, social physique anxiety was entered to test for a main effect of social physique anxiety on attitudes toward exercise settings. Finally, interactions between video and physical activity (video x PA) and social physique anxiety (video x social

physique anxiety) were entered sequentially to test the hypothesis that physical activity and social physique anxiety moderate the relationship between the video observed and attitudes towards the exercise setting.

According to the results of the hierarchical multiple regression analysis, the overall model was significant $R^2 = .218$, adjusted $R^2 = .150$, $F(6,69) = 3.203$, $p = .008$ (see Table 10). As hypothesized, the video x PA interaction accounted for a significant increase in the amount of variance explained (R^2 change = .087, $p = .008$). Specifically, 8.7% of the variance in ATES scores was predicted by the video x PA interaction. To evaluate the form of this interaction, two regression equations, one for each video (conservative and revealing), with attitude toward exercise setting as the dependent variable, were calculated (Aiken & West, 1991). To do this, first the covariate BMI was entered into the regression analyses followed by physical activity. Next, as recommended by Aiken & West (1991), predicted ATES values for each regression equation (see Figure 1) were calculated by choosing physical activity values (a) 1 standard deviation below the mean physical activity score (i.e., $-1 \text{ SD} = 50.77 - 33.42 = 17.35$, see Table 6 descriptives), (b) at the mean physical activity score (i.e., $\bar{x} = 50.77$), and (c) 1 standard deviation above the mean physical activity score (i.e., $= 1 \text{ SD} = 50.77 + 33.42 = 84.19$). These predicted values were then plotted for each video condition (see Figure 1). As can be seen in Figure 1, the extent to which the video influenced ATES was dependent upon the level of physical activity. Consistent with Hypothesis 5, the regression equation for the revealing attire video indicated that as physical activity level increased, attitudes towards the revealing attire exercise setting also increased. Again consistent with Hypothesis 5, the

regression equation for the conservative attire videotape indicated that among those who saw the conservative video, there was no relationship between physical activity level and attitudes towards the exercise setting.

Although not significant, when ATEs means were plotted as a function of video condition, participants tended to have more favourable attitudes in the hypothesized direction -- towards the conservative attire videotape (R^2 change = .035, $p = .10$; see Figure 2). Finally, while it was predicted that social physique anxiety would moderate the relationship between the video observed and the attitude older women had toward the exercise settings, the video x social physique anxiety interaction accounted for only 3.8% of the variance in ATEs ratings and approached, but did not attain significance (R^2 change = .038, $p = .07$). For exploratory purposes, the form of this interaction was evaluated by calculating regression equations for each video, with attitude toward exercise setting as the dependent variable (Aiken & West, 1991). To calculate these equations, first, the covariates BMI and physical activity were entered together into the regression analyses followed by social physique anxiety (SPA). Next, predicted ATEs values for each regression equation (see Figure 3) were calculated using SPA values 1 standard deviation below the mean SPA score, at the mean SPA score, and 1 standard deviation above the mean SPA score (Aiken & West, 1991). As can be seen in Figure 3, the extent to which ATEs was influenced by the videos tended to be dependent upon social physique anxiety. As predicted, the regression equation for the revealing attire video indicated that as social physique anxiety increased, attitudes towards the revealing attire exercise setting tended to decrease. However, contrary to hypothesis, the regression

equation for the conservative attire videotape revealed that as social physique anxiety increased, attitudes toward the exercise setting did not change.

Predicting Changes in Self-Presentational Efficacy (SPE)

A hierarchical multiple regression analysis was performed to test whether participants' self-presentational efficacy changed after watching the videotapes and if social physique anxiety and physical activity moderated the relationship between the video observed and older women's post-self-presentational efficacy (i.e., Hypothesis 6). The dependent variable in the analysis was post-self-presentational efficacy. The order of variable entry is outlined in Table 11. First, covariates (BMI, PA, pre-self-presentational efficacy) were entered as a block to account for individual differences in these variables, to control for the observed relationships between post-self-presentational efficacy scores and pre-self-presentational efficacy ($r = .775, p < .01$) and post-self-presentational efficacy and BMI ($r = -.374, p < .01$), and to test for a main effect of physical activity. Next, the dummy-coded video variable (conservative attire = 1; revealing attire = 2) was entered to test for a main effect of the video observed on post-self-presentational efficacy scores. Third, social physique anxiety was entered to test for a main effect of social physique anxiety on changes in post-self-presentational efficacy. Finally, interactions between video and physical activity (video x PA) and video and social physique anxiety (video x social physique anxiety) were entered sequentially to determine whether physical activity and social physique anxiety each moderated the relationship between the video observed and the post-self-presentational scores.

According to the hierarchical multiple regression analysis, the overall model was significant $\underline{R}^2 = .694$, adjusted $\underline{R}^2 = .663$, $F(7,68) = 20.059$, $p < .001$ (see Table 11). As hypothesized, the video x social physique anxiety interaction accounted for a significant increase in the variance explained ($\underline{R}^2$ change = .027, $p = .016$). Specifically, 2.7% of the variance in post-self-presentational efficacy scores was predicted by the video x social physique anxiety interaction. To evaluate the form of this interaction, two regression equations, one for each video (conservative and revealing), with post-self-presentational efficacy as the dependent variable, were calculated (Aiken & West, 1991). First, the covariates BMI, physical activity, and pre-self-presentational efficacy were entered as a block into the regression analyses followed by social physique anxiety. Next, as recommended by Aiken & West (1991), predicted post-SPE values for each regression equation (see Figure 4) were calculated by choosing SPA values 1 standard deviation below the mean SPA score, at the mean SPA score, and 1 standard deviation above the mean SPA score (Aiken & West, 1991). As can be seen in Figure 4, the extent to which the video influenced self-presentational efficacy was dependent upon social physique anxiety. Consistent with Hypothesis 6, among women who saw the revealing video, those with greater social physique anxiety had greater decreases in post-self-presentational efficacy compared to those with lower social physique anxiety. However, contrary to hypothesis, among women who saw the conservative video, the level of social physique anxiety was unrelated to changes in post-self-presentational efficacy.

Although not significant, when the post-self-presentational means were plotted as a function of video, overall, the participants tended to change their self-presentational

efficacy in the hypothesized direction; participants who watched the conservative attire videotape had higher post-self-presentational efficacy compared to participants who watched the revealing attire videotape (R^2 change = .013, $p = .10$; see Figure 5). Finally, while it was predicted that physical activity would moderate the relationship between the video observed and the post-self-efficacy scores, the video $\times$ PA interaction was not significant (R^2 change = .000, $p > .75$).

Discussion

This study examined the relationship between various self-presentational variables related to exercise (social physique anxiety, impression motivation, and self-presentational efficacy) and older women's exercise motives, and attitudes toward different exercise settings. Results indicated that while in general, older women's attitudes towards conservative attire and revealing attire exercise settings did not significantly differ, the physical activity level of the older women in the study influenced their preference for different exercise settings. Similarly, in general, older women's confidence in their ability to self-present as a healthy and fit individuals (i.e., self-presentational efficacy), was not differentially affected by exposure to the videos. However, self-presentational concerns (i.e., social physique anxiety) did moderate the effects of the videos on older women's self-presentational efficacy. In addition, while health and fitness motives were of primary importance to older women, self-presentational concerns were related to the endorsement of some self-presentational motives for exercise. These results provide a benchmark for future research examining self-presentational concerns in exercise among older populations. In other words, while

much of the self-presentation research in exercise has focused on younger age groups (i.e., Leary, 1992) and self-presentation concerns in general among older people (i.e., Martin et al., 2000), this thesis has extended our knowledge of self-presentation to older women in an exercise context. Not only do these results advance knowledge of the self-presentation phenomenon, but from an applied perspective, they suggest that exercise programs for older women should consider key factors such as the clothing worn by exercisers, physical activity level, and self-presentational concerns in order to help motivate older women to initiate and maintain their physical activity programs. The following sections discuss the results of Study 2 and provide suggestions for clinical application, limitations to the present investigation, and directions for future research.

Attitudes and the Exercise Environment

A recent review (Martin et al., 2000) has suggested that older adults may be reluctant to engage in physical activity because of self-presentational concerns they may experience in the exercise environment. For example, the clothing attire worn by exercisers may deter participation because older adults may sometimes feel that wearing exercise clothing is embarrassing and not appropriate for older persons (Sidney & Shephard, 1976). Research examining exercise clothing preferences among younger women shows that the clothing worn in an exercise setting in fact influences women's attitudes toward the exercise setting (Crawford & Eklund, 1994; Eklund & Crawford, 1994), with women generally preferring environments where more conservative attire is worn.

However, according to a hierarchical multiple regression analysis, in general, older women in the present study had equally favourable attitudes towards the conservative (i.e., t-shirts and shorts) and revealing (i.e., sleeveless shirts and shorts) attire videotapes. Such a result is important as it implies that contrary to prediction, unlike younger women (Crawford & Eklund, 1994; Eklund & Crawford, 1994), older women do not have distinct exercise attire preferences. However, when the physical activity level of the older women was considered, the regression analysis revealed a significant interaction such that physical activity moderated the effects of the video on attitudes towards the exercise settings. Specifically, 8.7 % of the variance in attitude toward exercise setting scores was accounted for by the interaction between the video and physical activity level. Consistent with hypothesis, for the revealing attire condition, as physical activity decreased, attitudes toward the exercise setting also decreased. For the conservative attire video, as physical activity level increased, attitudes toward the exercise environment did not change. Thus, preferences for a revealing-type exercise environment is moderated by the physical activity level of older women.

The significant influence of physical activity level on preferences for a revealing attire exercise environment might be explained by the fact that for those women who are less active, concerns about the appropriateness of exercising in traditional exercise clothing that highlights the physique, may deter subsequent exercise participation. As previously mentioned, Sidney & Shephard (1976) had difficulty recruiting participants to their exercise training study because some older adults felt that wearing “exercise clothing” would be embarrassing. In contrast, those who are more active may feel that

wearing traditional exercise clothing (i.e., sleeveless shirts and shorts) is more practical and less restricting when engaging in exercise. Thus, more experienced exercisers may have more favourable attitudes towards the revealing attire exercise setting simply because they appreciate the practicality of wearing traditional exercise clothing. These results have important implications when designing exercise programs for senior women. As less active and more active women like the conservative attire environment to the same degree, and given that health promoters are most likely to be interested in promoting physical activity for sedentary or low active women (who when compared to more active women, do not prefer a revealing attire environment), a more conservative attire environment is recommended for older women engaging in group walking activities.

Interestingly, among older women, social physique anxiety does not seem to be as important a determinant of attitudes toward exercise settings as it is among younger women. In the present investigation, the regression analysis revealed that social physique anxiety did not moderate older women's exercise attire preferences. That social physique anxiety was not significantly associated with older women's attitudes toward the exercise setting videos may be attributed to the fact that across the life span, social physique anxiety decreases among women (see Table 1, Study 1). Thus, this self-presentational concern may not influence exercise decisions to the same degree as they do among younger women (Crawford & Eklund, 1994).

However, correlational analyses revealed that other psychological (impression motivation, and pre-self-presentational efficacy) and biological (body mass index)

constructs were related to older women's attitudes toward the conservative and revealing attire environments³. As hypothesized, the following significant results were obtained: as body mass index and impression motivation increased, older women's attitudes toward the conservative attire videotape increased, and as pre-self-presentational efficacy increased, older women's attitudes toward the revealing attire videotape increased. Also consistent with hypothesis, there was no relationship between pre-self-presentational efficacy and older women's attitudes toward the conservative attire environment. These results suggest that in addition to physical activity level, different biological and psychological factors are related to older women's preferences for conservative and revealing attire exercise environments.

Collectively, the above-mentioned results indicate that older women's attitudes toward exercise settings that emphasize and de-emphasize the physique differ from younger women (i.e., older women prefer the exercise settings to the same degree; younger women prefer environments which de-emphasizes the physique [Crawford & Eklund, 1994; Eklund & Crawford, 1994]). Furthermore, variables that moderate older women's attitudes toward the exercise settings differ from those that moderate younger women's exercise preferences. Specifically, physical activity level, but not social physique anxiety, is an important moderator of older women's preferences for exercise settings. Similarly, unlike studies of younger women (Crawford & Eklund, 1994; Eklund & Crawford, 1994) biological and other psychological factors are related to exercise setting preferences. Next, results addressing the impact of different exercise settings on self-presentational efficacy is discussed.

Self-Presentational Efficacy and the Exercise Environment

According to Self-Efficacy Theory (Bandura, 1977), one way to alter self-efficacy for a behaviour is to provide an individual with a vicarious experience or model of the behaviour. In doing so, the person is provided with information that can enhance or reduce his/her efficacy expectations. A hierarchical multiple regression analysis was conducted to determine whether the conservative and revealing attire videotapes served to influence older women's post-self-presentational efficacy. In other words, did the videos serve as a vicarious experience for the participants to increase or decrease their self-presentational efficacy?

Results indicated that contrary to hypothesis, overall, after watching the videos, older women's self-presentational efficacy did not significantly differ between video conditions. However, for some women, the videos did influence post-self-presentational efficacy. Specifically, the regression analysis revealed that social physique anxiety (SPA) acted as a moderator for the relationship between the video observed and older women's post-self-presentational efficacy; 2.7% of the variance in post-self-presentational efficacy scores was predicted by the video x SPA interaction. Although no changes in efficacy occurred for women who watched the conservative attire videotape, as predicted, among older women who saw the revealing videotape, those with higher social physique anxiety had greater decreases in self-presentational efficacy compared to those with lower social physique anxiety. Apparently, the revealing video acted as a vicarious experience (Bandura, 1977) and decreased self-presentational efficacy among those women with higher social physique anxiety. This finding has important clinical implications: for older

women with higher social physique anxiety, exercise settings that highlight people's bodies can reduce women's confidence in presenting themselves as competent, fit exercisers. Thus, a more conservative-type environment is recommended for women with higher social physique anxiety. Research examining the relationship between self-presentational efficacy and another type of anxiety, social anxiety, suggests that a comfortable, non-threatening environment may help heighten self-presentational efficacy among people with high social anxiety (Leary & Atherton, 1986). In the context of the present study, after watching the conservative attire exercise setting, women with higher social physique anxiety were just as efficacious as women with lower social physique anxiety. Thus, perhaps the more comfortable, conservative video enabled women with higher social physique anxiety to increase their self-presentational efficacy to the same level of the women with lower social physique anxiety.

In addition to social physique anxiety, the moderating effect of physical activity level on self-presentational efficacy for the exercise settings was examined. The regression analysis indicated that physical activity level did not moderate the relationship between the video observed and post-self-presentational efficacy. This result is surprising given that among younger women, self-presentational efficacy is greater among more active than less active women (Gammage et al., 2001b). In addition, there is ample evidence to suggest that exercise experience influences self-efficacy (McAuley & Mihalko, 1998). Thus, from a Self-Efficacy Theory perspective, one would predict physical activity level to moderate the relationship between the video observed and older women's post-self-presentational efficacy. For example, women who observe a revealing

attire exercise environment who have less exercise experience may have decreases in self-presentational efficacy compared to women with more exercise experience.

One explanation for the absence of the moderating effect of physical activity might be that for older women, physical activity level is not as important an influence on self-presentational efficacy as other self-presentational variables such as social physique anxiety. For example, as the present research has shown (see Study 1, and Study 2), self-presentational motives are not the primary reasons older women exercise. Thus, as self-presentation is not a large component of their exercise behaviour, then one might not expect their behaviour to be predictive of other self-presentational cognitions such as self-presentational efficacy. In contrast, other self-presentational variables (i.e., social physique anxiety) should be related to self-presentational efficacy because they share the phenomenon of self-presentation. In fact, research has shown that other types of self-presentational anxiety (i.e., social anxiety) are related to one's self-presentational efficacy (see Leary & Atherton, 1986; Maddux et al., 1988). Thus, in this study, social physique anxiety, and not physical activity, may be the most important determinant of subsequent self-presentational efficacy in different exercise settings.

Exercise Motives and Self-Presentational Concerns

To further knowledge regarding self-presentation and exercise motives among older women, correlations between self-presentational exercise motives and social physique anxiety (SPA) and impression motivation (IM) were calculated. While it was predicted that these self-presentational variables would positively correlate with self-presentational motives for exercise (i.e., tone, attractiveness, and weight control), only

the Tone and Weight Control subscales of the REI was significantly related to social physique anxiety, and only the Tone and Attractiveness subscales were related to impression motivation. Specifically, as SPA increased, endorsement of tone and weight control motives increased and as IM increased, endorsement of tone and attractiveness motives increased. One explanation for our failure to find correlations between the self-presentational variables and all self-presentational exercise motives may be due to the fact that older women in general tend to exercise more for non-self-presentational motives such as health and fitness than for self-presentational motives (Gill & Overdorf, 1994; Sidney & Shephard, 1976; Tiggemann & Williamson, 2000; cf Study 1). In fact, a one-way ANOVA and subsequent Bonferonni post hoc tests comparing exercise motives revealed health and fitness motives to be more important than self-presentational and non-self-presentational motives for exercise among older women. In addition, the standardized means for the self-presentational motives were below the conceptual midpoint of the scale (i.e., conceptual midpoint = 4 on a Likert scale from 1 to 7), indicating that participants responded in a truncated range of possible scores. When a scoring distribution is restricted in this way, correlations between the truncated variable and others may be considerably lower than when scoring distributions represent the entire range of normally distributed values. These conditions may explain the lower than predicted correlations between all of the self-presentational motives and social physique anxiety and impression motivation in the present study.

With respect to non-self-presentational motives for exercise (i.e., health, fitness, mood, and enjoyment), contrary to prediction, social physique anxiety was negatively

correlated with the strength of fitness motives for exercise; as SPA increased, endorsement of fitness motives for exercise decreased. This result is similar to a finding in Eklund and Crawford's (1994) study of highly active young women where they found that social physique anxiety was negatively correlated with the endorsement of health motives for exercise. However, Eklund and Crawford (1994) offered no explanation for this result. In the context of the present investigation, one possible explanation for the negative relationship observed between SPA and fitness motive endorsement may be that for older women with high self-presentational concerns (such as social physique anxiety), fitness motives are the least important reason for exercising. That is, for women with higher social physique anxiety, improvements in fitness are a very low priority in comparison to improvements in physical appearance. If women with higher social physique anxiety consider fitness to be of low importance this might explain the negative correlation between social physique anxiety and the endorsement of fitness motives for exercise. Also contrary to hypothesis, social physique anxiety was positively correlated with mood enhancement motives for exercise. This unexpected, positive relationship might be explained by one of the Mood subscale items: "I exercise to cope with stress, anxiety." Participants with anxieties regarding presenting their physiques in front of others may use exercise as a strategy to reduce these self-presentational concerns.

When examining the relationship between non-self-presentational motives for exercise and impression motivation, consistent with hypothesis, impression motivation was positively correlated with the endorsement of health and fitness motives for exercise: as a woman's desire to present herself as a healthy, fit exerciser increased, her

endorsement of health and fitness motives for exercise also increased. This suggests that exercising to improve one's health and fitness provides certain self-presentational benefits associated with being perceived as a physically competent exerciser (cf. Martin et al., 2000). However, contrary to prediction, as endorsement of enjoyment motives increased, impression motivation also increased. This unexpected relationship might be explained by the fact that a person who is very motivated to make a good impression on others, as an exerciser, may feel that exercising to "meet new people," "socialize with friends," and "have fun" (all items on the Enjoyment subscale of the Reasons for Exercise Inventory; Silberstein et al., 1988) contribute to creating a positive, "exerciser" image. Research among younger adults shows that a halo of positive characteristics--including those associated with being fun and outgoing--are in fact attributed to women who are regular exercisers (Martin, Sinden, & Fleming, 2000). Thus, when people are motivated to create the impression of being an exerciser, they may find that interacting with other exercisers in a fun, social environment is conducive to creating the desired exerciser image.

Social Physique Anxiety and its Correlates

Correlational analyses were used to advance knowledge regarding social physique anxiety among older women and its relationship with other variables (age, body mass index, physical activity level, impression motivation, and pre-videotape self-presentational efficacy). Results indicated that as predicted, there was a positive relationship between social physique anxiety and body mass index (BMI); as SPA increased, BMI also increased. This result is consistent with numerous other studies

which have found a positive relationship between body composition and SPA in younger women (Hart et al., 1989; Hausenblas & Martin, 2000; McAuley et al., 1995; Randsall et al., 1998; Spink, 1992; Treasure, Lox, & Lawton, 1998). Also consistent with hypothesis, as participants' social physique anxiety increased, pre-self-presentational efficacy decreased. This result suggests that for older women with higher social physique anxiety, their confidence in their ability to present themselves as competent exercisers is compromised. Thus, efforts should be made to determine strategies which enhance self-presentational efficacy in this population because an increase in self-presentational efficacy may in turn increase exercise behaviour. This recommendation is based on research which shows that self-efficacy is a potent determinant of exercise behaviour--the higher the efficacy, the greater the adherence to a prescribed regime (see Martin & Sinden, 2001). Whether greater self-presentational efficacy also leads to greater exercise adherence among older women is a question worthy of additional research.

Contrary to prediction, age, physical activity level, and impression motivation were not related to social physique anxiety. Research has shown that SPA is negatively correlated with age in women aged 45 to 64 years (McAuley et al., 1995) and is unrelated to age among women 50 to 79 years (Ransdell et al., 1998). Some researchers have suggested that concerns regarding the physique may decrease only to a certain level in older age and do not decline any further beyond that age (i.e., decreases to a plateau; see Martin et al., 2000). Thus, the present study may have tested participants of the age range when social physique anxiety has plateaued and no relationship between SPA and age was obtained because of low variability in social physique anxiety scores.

Interestingly, in both Study 1 and Study 2, older women's mean social physique anxiety scores were identical ($M = 31$) and only Ransdell and colleagues' (1998) sample of post-menopausal women aged 50 to 79 years has resulted in a lower mean social physique anxiety score ($M = 27$) in any study of women. As well, in all three samples (Study 1; 2; Ransdell et al., 1998), the standard deviation was lower than for studies of younger women (for comparisons see Ransdell et al., 1998) which suggests that the variability in social physique anxiety scores decreases with age and thus it becomes more difficult to obtain significant correlations between social physique anxiety and other constructs (i.e., due to reduced variability in social physique anxiety).

That social physique anxiety was not related to physical activity level is not completely unexpected; previous research among younger adults has found positive (Lantz et al., 1997), negative (Frederick & Morrison, 1996), and no relationship (Crawford & Eklund, 1994) between exercise frequency and social physique anxiety. Among older adults, research has also provided equivocal results (McAuley et al., 1995; Ransdell et al., 1998). Specifically, while McAuley and colleagues (1995) found that older adults who exercised less reported greater levels of social physique anxiety, this result was eliminated when controlling for body composition. Only Ransdell and colleagues' (1998) study of older women found a positive relationship between exercise frequency and social physique anxiety. The equivocal relationship observed between social physique anxiety and physical activity may indicate that some third, uncontrolled variable is influencing the relationship between the two constructs.

With respect to impression motivation, social physique anxiety may not have correlated with the desire to portray oneself as an exerciser for the same reason mentioned above (i.e., low variability in social physique anxiety scores) and because physical appearance may only be one small component of the attributes older women associate with portraying oneself as an exerciser. For older women, concerns about appearing coordinated, physically competent, and in good cardiovascular shape may be more strongly related to their desire to self-present as an exerciser, than their concerns about the appearance of their bodies.

Implications for Clinical Application

This research furthers the idea that older women do experience self-presentational concerns and that these concerns extend to the exercise domain (Martin et al., 2000). Historically, the appropriateness of exercise for older women has been questioned (Behlendorf et al., 1999; Khoury-Murphy & Murphy, 1992; Ostrow & Dzewaltowski, 1986; Ostrow et al., 1987; Ostrow et al., 1981; Vertinsky, 1998) and this thesis has provided important information for health promoters wishing to address why the majority of older women fail to initiate or comply with regular physical activity programs. Specifically, by examining self-presentational variables in exercise settings among older women, a complimentary framework or starting point for research tackling the exercise attrition problem in this population is created. While there is ample evidence to suggest that non-self-presentational motives for exercise such as health and fitness are of primary importance to older women, the present research has uncovered other variables such as physical activity level, social physique anxiety, impression motivation, self-

presentational efficacy, and the exercise environment that require attention when designing exercise programs for older women.

Specifically, compared to more active women, less active older women have less favourable attitudes towards an exercise setting where age-similar peers wear clothing that emphasizes the physique. These attitudes in turn may influence their decision to join the group and be physically active: feeling obligated to wear revealing exercise clothing may act as a barrier to older women's physical activity participation. Thus, when health promoters are designing exercise programs for senior women, conservative clothing that does not highlight the physique, is recommended as a dress-code so as to increase the probability of changing sedentary behaviour to active exercise participation.

Another benefit of encouraging a more conservative-type attire is that for some older women, confidence in one's ability to present oneself as being a healthy and fit person tends to be reduced simply by observing other women exercising in revealing attire. Specifically, this study found that for women with high social physique anxiety, their self-presentational confidence decreased when observing a videotape of exercisers in more body-salient clothing. The fact that simply watching a videotape (a vicarious experience--the 2nd strongest source of self-efficacy beliefs; Bandura, 1977) negatively influenced self-presentational efficacy among women with higher social physique anxiety, suggests that actually participating with a group of exercisers wearing revealing attire (a past performance experience--the strongest source of efficacy beliefs; Bandura, 1977) may alter older women's self-presentational efficacy to an even greater degree.

Thus far, the benefits of providing a conservative attire exercise environment for older women have been discussed. However, health professionals should also consider the exercise motives of their senior female clients when designing appropriate physical activity programs. For women who are highly motivated to present themselves as competent exercisers (i.e., higher impression motivation) and for those with physical appearance concerns (i.e., higher social physique anxiety), the strength of physical appearance motives for exercise (i.e., muscle tone and/or physical attractiveness and/or weight control) increases. As well, women with higher impression motivation endorse fitness and health motives for exercise while those with higher social physique anxiety do not. Thus, as older women engage in exercise for a variety of reasons, it is recommended that exercise directors and personal trainers individually evaluate women's reasons for exercise and when possible, design personal programs that correspond to the needs and motives of their members. For example, by providing personalized feedback addressing these different exercise motives, older women may be encouraged to continue their exercise programs. One woman might exercise strictly for health and physical fitness improvement and may benefit from feedback regarding her ability to exercise longer without stopping (i.e., better cardiovascular fitness). Conversely, another woman concerned about her overall appearance and may be encouraged to hear about personal improvements in her battle with her weight control and muscle tone. Thus, addressing exercise motives is recommended.

Limitations and Future Directions

While the present investigation provides important information for those designing appropriate exercise environments for senior women and to understand self-presentation conceptually and theoretically, some limitations to the present investigation warrant mention. First, older women's future exercise intentions and behaviour were not measured in this study. Therefore, whether older women's attitudes toward different exercise settings and self-presentational efficacy predict future exercise behaviour is not known. Determining whether the exercise setting videos influence older women's future intentions and actual exercise behaviour would be beneficial because the videos may serve as a simple tool or strategy to get older women to be more physically active. For example, it may be that more favourable attitudes toward a conservative attire exercise setting positively impact future exercise intentions/behaviour among older women. Conversely, less favourable attitudes toward a revealing attire environment may negatively impact future exercise intentions/behaviour, reducing the likelihood of future exercise engagement.

Likewise, we know that older adults with higher self-efficacy are more likely to adhere to their exercise programs (Martin & Sinden, 2001) so it is reasonable to hypothesize that older women with higher self-presentational efficacy will also be more adherent to exercise. Particularly, as research indicates that different types of efficacy are related to exercise behaviour at different time points in an exercise program (see Maddux, Brawley, & Boykin, 1995), the benefit of boosting older women's self-presentational efficacy prior to or early on in an exercise program may help to eliminate a potential

barrier to exercise initiation. For example, after watching others exercise in a comfortable, non-threatening environment (i.e., conservative attire setting), older women worried about their ability to present themselves as healthy, competent exercisers (i.e., a potential barrier to exercise) may decide to start an exercise program. Thus, the present research may lead to further expansion of Self-Efficacy Theory in the exercise domain to include other types of self-efficacy (i.e., self-presentational efficacy). Specifically, if the videos influence self-presentational efficacy and this in turn influences exercise behaviour, health promoters can use a quick and easy tool (i.e., a video) to ultimately increase exercise initiation and adherence. For example, given the nonsignificant trend for older women to have higher self-presentational efficacy after watching the conservative attire video (see Figure 5), it is possible that these increases in self-presentational beliefs may in turn increase the likelihood of engaging in future physical activity.

The present investigation examined a group of older women with an array of exercise backgrounds (i.e., physical activity status ranged from mild participation to strenuous) thus providing valuable information regarding differences between active and less active older women. However, a second limitation of the present investigation was that the sample size did not allow for data analysis of exclusively sedentary women. Replicating this study with only sedentary women may provide unique results concerning self-presentational concerns that influence exercise participation. For example, sedentary older women may have higher social physique anxiety and impression motivation compared to the more active women in this study. Furthermore, compared to active

women, sedentary women may have stronger preferences for a conservative attire exercise environment and watching the exercise attire videos may influence their self-presentational efficacy to a greater degree. Specifically, for sedentary older women, one may find that the conservative attire exercise setting significantly boosts self-presentational efficacy (in the present investigation, a nonsignificant trend was obtained).

Additional limitations of the present investigation include the generalizability of the results to other physical activities (i.e., the older women in the present study watched a video of other older adults walking for exercise). Would clothing attire preferences and changes in self-presentational efficacy be obtained for group aerobic classes or strength training? Also would manipulating other aspects of the exercise environment such as the presence or absence of mirrors or posters emphasizing the body influence older women's exercise preferences and efficacy? Taken together, by addressing the limitations of the present research, valuable information concerning the role of self-presentation in exercise settings among older women may continue to be uncovered.

Summary

In conclusion, this research has advanced our knowledge concerning self-presentation in exercise settings among older women, thus providing support for Martin and colleagues' (2000) conceptual framework for studying self-presentation in the daily lives of older people. Study 1 demonstrated the reliability and validity of self-presentational and exercise-related measures for this population and Study 2 uncovered relationships between self-presentational constructs, exercise motives, and exercise setting preferences of older women. Specifically, the results of this thesis provide at least

two pieces of evidence indicating the importance of self-presentation in exercise contexts among older women. First, self-presentational variables (i.e., social physique anxiety and impression motivation) were related to older women's reasons for engaging in exercise (Studies 1 & 2). And second, self-presentational efficacy is a concept generalizable to older women and can be moderated by other self-presentational constructs (i.e., social physique anxiety). Moreover, self-presentational efficacy acts like other forms of self-efficacy in terms of how it can be affected (vicariously; Study 2). Consequently, this research has shown that self-presentational efficacy can be conceptualized within a broader Self-Efficacy Theory (Bandura, 1977) framework. From an application perspective, the results of this thesis indicate that when designing exercise programs catering to the needs and concerns of older women, individual exercise motives and a conservative attire exercise environment should be considered. By addressing the limitations of the present investigation it is hoped additional knowledge will be provided to aid health professionals in their plight to decrease exercise avoidance and noncompliance among older women.

Table 5

Study 2: Reliability Coefficients for the Measures

Measures and Subscales	Alpha Coefficients
Social Physique Anxiety Scale	.86
Reasons for Exercise Inventory	.86
Health	.84
Fitness	.85
Mood	.75
Enjoyment	.80
Tone	.69*
Attractiveness	.61**
Weight Control	.72
Impression Motivation	.93
Self-Presentational Efficacy	
Pre-videotape	.92
Post-videotape	.97
Attitude Toward Exercise Setting	.94

Note. * The alpha coefficient for the Tone Subscale was acceptable at .75 when the item “I exercise to alter a specific area of my body” was removed. ** The alpha coefficient for the Attractiveness Subscale was acceptable at .79 when the item “I exercise to improve

my appearance” was removed. As a result, subsequent analyses using the Tone and Attractiveness subscales do not include the items mentioned above.

Table 6

Study 2: Descriptive Statistics for the Measures

Measures and Subscales	<u>M</u>	<u>SD</u>	Observed Range	*Standardized <u>M</u>
Age	70.85	6.46	53-84	
BMI	24.99	4.25	17.89-38.70	
Physical Activity Level	50.77	33.42	3-258	
Social Physique Anxiety Scale	30.74	7.87	15-60	
Reasons for Exercise Inventory				
Health	23.86	4.41	12-28	5.97
Fitness	20.60	5.07	4-28	5.15
Mood	16.42	5.24	5-28	4.05
Enjoyment	10.54	4.57	3-21	3.51
Tone	7.37	3.09	2-14	3.69
Attractiveness	3.71	2.21	2-12	1.86
Weight Control	11.63	4.53	3-21	3.88
Impression Motivation	14.71	5.35	4-24	
Self-Presentational Efficacy				
Pre-videotape	326.58	108.71	60-500	
Post-videotape	334.23	114.69	40-500	
Attitude Toward Exercise Setting				
Conservative Videotape	25.40	8.80	10-38	
Revealing Videotape	23.35	8.80	8-40	

Note. M = Mean, SD = Standard Deviation.

Health, Fitness, and Mood subscales can range from 4–28; Enjoyment and Weight Control subscales can range from 3–21; and Tone and Attractiveness subscales can range from 2–14. Scores on the Social Physique Anxiety Scale can range from 12–60.

Impression Motivation scores can range from 4–24. Self-Presentational Efficacy scores can range from 0–500. Attitude Toward Exercise Setting Scores can range from 8–40.

*To compare exercise motives, subscale scores from the Reasons for Exercise Inventory were standardized by dividing the mean subscale score by the number of items comprising each subscale.

Table 7

Study 2: Hypothesized and Observed Correlations Between Exercise Motives and Social
Physique Anxiety and Impression Motivation

	Social Physique Anxiety	Impression Motivation
Reasons for Exercise Inventory		
Health	-.170 (Ø)	.295** (+)
Fitness	-.261* (Ø)	.289** (+)
Mood	.189* (Ø)	.101 (Ø)
Enjoyment	-.106 (Ø)	.406** (Ø)
Tone	.307** (+)	.277* (+)
Attractiveness	.085 (+)	.309** (+)
Weight Control	.211* (+)	.146 (+)

Note. * Correlation significant at $p < .05$, ** Correlation significant at $p < .01$. Items in parentheses represent the predicted relationship between variables. '+' = positive correlation, '-' = negative correlation, 'Ø' = no correlation.

Table 8

Study 2: Hypothesized and Observed Correlations Between Social Physique Anxiety and Age, BMI, Physical Activity, Impression Motivation, and Pre-Self-Presentational Efficacy

	Social Physique Anxiety
Age	-.012 (-)
BMI	.421** (+)
Physical Activity Level	-.165 (-)
Impression Motivation	-.022 (+)
Pre-Self-Presentational Efficacy	-.476** (-)

Note. BMI = Body Mass Index. ** Correlation significant at $p < .01$. Items in parentheses represent the predicted relationship between variables. '+' = positive correlation. '-' = negative correlation.

Table 9

Study 2: Hypothesized and Observed Correlations Between Attitudes Toward Exercise Settings and BMI, Impression Motivation, and Pre-Self-Presentational Efficacy

	BMI	IM	Pre-SPE
ATES-C	.326* (+)	.301* (+)	.057 (Ø)
ATES-R	.062 (-)	.126 (-)	.341* (+)

Note. BMI = Body Mass Index, IM = Impression Motivation, Pre-SPE = Pre-Self-Presentational Efficacy, ATES-C = Attitude Toward Exercise Setting for the Conservative attire videotape, ATES-R = Attitude Towards Exercise Setting for the Revealing attire videotape.

* Correlation significant at $p < .05$.

Items in parentheses represent the predicted relationship between variables. '+' = positive correlation, '-' = negative correlation, 'Ø' = no correlation.

Table 10

Study 2: Predicting Attitude Toward Exercise Settings

	<u>R</u> ² change	<u>R</u> ²	p of <u>F</u> change	standardized regression coefficient (Beta)*
<u>Step 1</u>	.038	.038	.239	
BMI				.256
PA				-.715
<u>Step 2</u>				
Video	.035	.074	.103	.123
<u>Step 3</u>				
SPA	.019	.092	.231	.406
<u>Step 4</u>				
Video x PA	.087	.179	.008	1.025
<u>Step 5</u>				
Video x SPA	.038	.218	.070	-1.037

Note. $\underline{R}^2 = .218$, adjusted $\underline{R}^2 = .150$, $\underline{F} (6,69) = 3.203$, $p = .008$.

BMI = Body Mass Index. PA = Physical Activity Level. SPA = Social Physique Anxiety.

* Beta coefficients after all variables have been entered into the model.

Table 11

Study 2: Predicting Changes in Self-Presentational Efficacy (SPE)

	R^2 change	R^2	p of Δ change	standardized regression coefficient (Beta)*
<u>Step 1</u>	.652	.652	.001	
BMI				.076
PA				-.008
Pre-SPE				.739
<u>Step 2</u>				
Video	.013	.665	.101	.567
<u>Step 3</u>				
SPA	.002	.667	.539	.424
<u>Step 4</u>				
Video x PA	.000	.667	.782	-.007
<u>Step 5</u>				
Video x SPA	.027	.694	.016	-.870

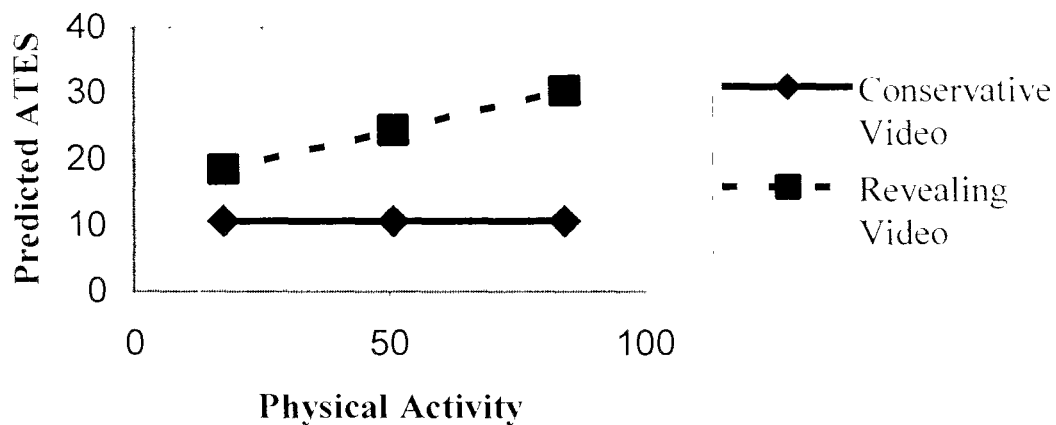
Note. $R^2 = .694$, adjusted $R^2 = .663$, $F(7.68) = 20.059$, $p < .001$.

Pre-SPE = Self-Presentational Efficacy Pre-videotape, BMI = Body Mass Index, PA = Physical Activity Level, SPA = Social Physique Anxiety.

* Beta coefficients after all variables have been entered into the model.

Figure 1

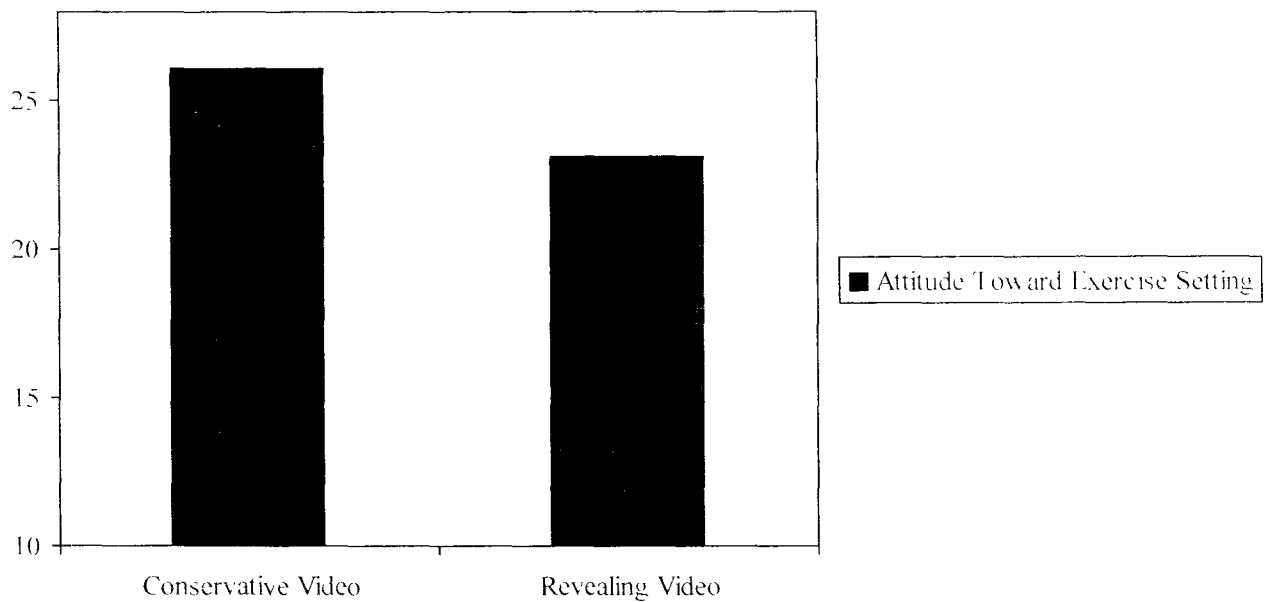
Plot of the interaction effect of video and physical activity on attitudes toward exercise settings (ATES).



Note. According to a hierarchical multiple regression analysis, physical activity acted as a moderator for the relationship between the video observed and the attitude older women had towards the exercise setting (R^2 change = .087, p = .008). As can be seen above, the extent to which the video influenced ATES was dependent upon the level of physical activity. The regression equation for the revealing attire video, $ATES = 15.38 + .179(PA)$, indicated that as physical activity increased, attitudes towards the revealing attire exercise setting increased. The regression equation for the conservative video attire, $ATES = 10.79 - .001(PA)$, indicated no relationship between physical activity and attitudes towards the exercise setting.

Figure 2

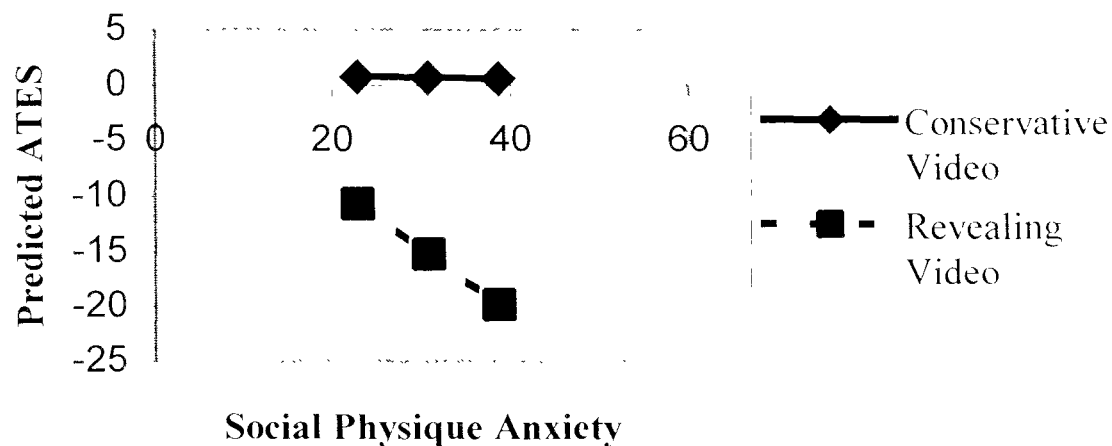
Plot of attitude toward exercise settings as a function of video after adjusting for BMI and physical activity.



Note. According to a hierarchical multiple regression, overall, participants tended to have more favourable attitudes toward the conservative attire videotape (R^2 change = .035, $p = .10$). Values above represent means when adjusting for BMI and physical activity.

Figure 3

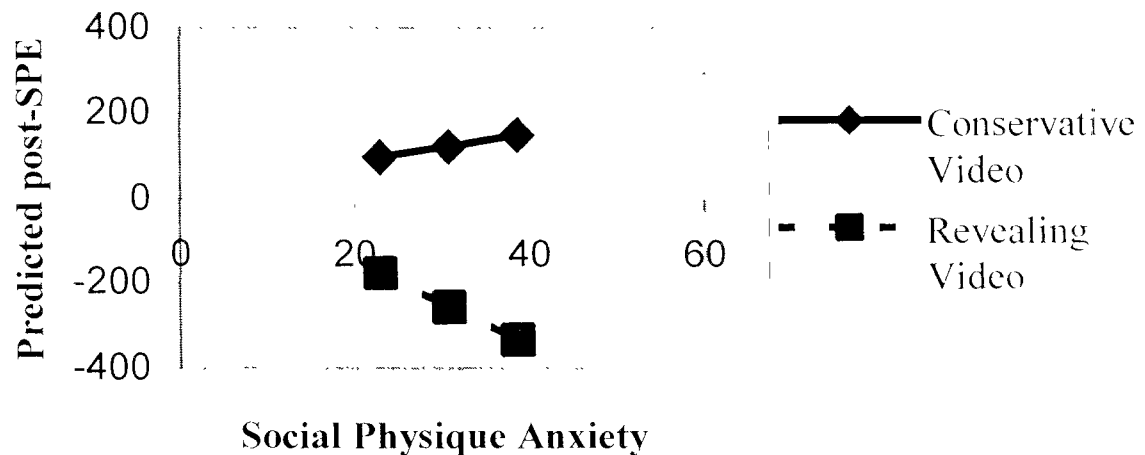
Plot of the interaction effect of video and social physique anxiety (SPA) on attitudes toward exercise settings (ATES).



Note. According to a hierarchical multiple regression analysis, social physique anxiety (SPA) did not act as a moderator for the relationship between the video observed and the attitude older women have towards the exercise setting setting (R^2 change = .038, p = .07). However, as can be seen above, the extent to which ATES was influenced by the videos tended to be dependent upon the level of social physique anxiety. Specifically, the regression equation for the revealing attire video, $ATES = 2.63 - .58(SPA)$, indicated that as social physique anxiety increased, attitudes towards the revealing exercise setting attire tended to decrease. The regression equation for the conservative video attire, $ATES = .997 - .009(SPA)$, indicated that as social physique anxiety increased, attitudes toward the exercise setting did not change.

Figure 4

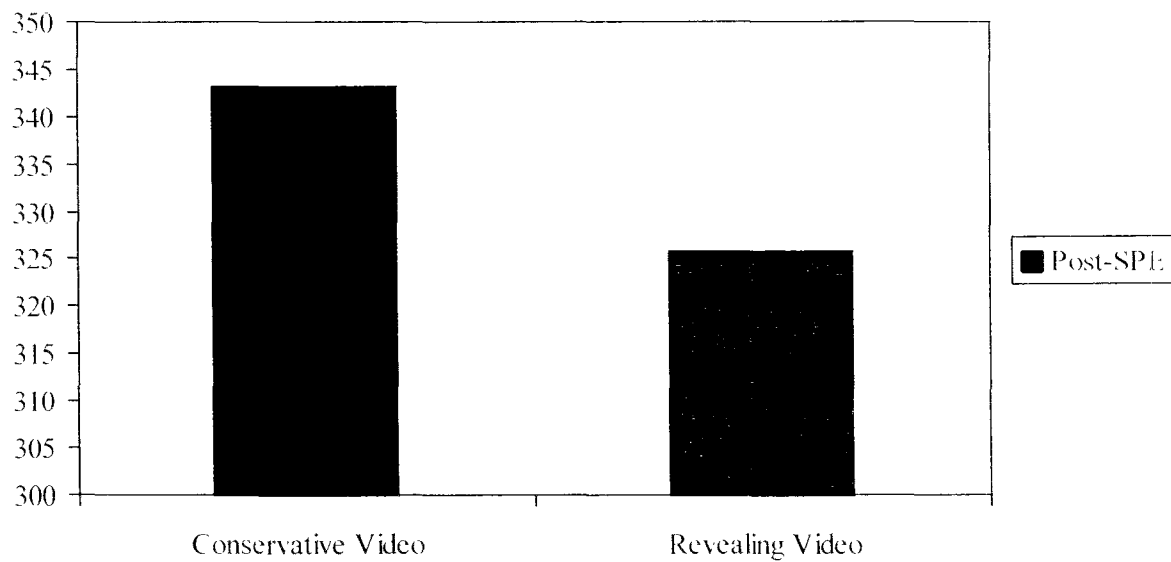
Plot of the interaction effect of video and social physique anxiety (SPA) on post-self-presentational efficacy (Post-SPE).



Note. According to a hierarchical multiple regression analysis, social physique anxiety moderated the relationship between the video observed and post-self-presentational efficacy (R^2 change = .027, $p = .016$). As can be seen above, the extent to which the video influenced self-presentational efficacy was dependent upon the level of social physique anxiety. The regression equation for the revealing attire video, $\text{Post-SPE} = -49.35 - 9.78(\text{SPA})$, indicated that as social physique anxiety increased, self-presentational efficacy for the revealing attire exercise setting decreased. The regression equation for the conservative attire video, $\text{Post-SPE} = 26.276 + 3.15(\text{SPA})$, indicated that the level of SPA was unrelated to changes in self-presentational efficacy.

Figure 5

Plot of post-self-presentational efficacy (Post-SPE) as a function of video when adjusting for BMI, physical activity, and pre-self-presentational efficacy.



Note. A hierarchical regression analysis indicated a trend such that overall, participants who watched the conservative attire videotape had higher post-self-presentational efficacy than participants who watched the revealing attire videotape (R^2 change = .013, $p = .10$). Values above represent means when adjusting for BMI, physical activity, and pre-self-presentational efficacy.

References

- Aiken, L. S., & West, S. (1991). Multiple regression: testing and interpreting interactions. Newbury Park, CA: Sage Publications, Inc.
- American College of Sports Medicine (1998). ACSM position stand on exercise and physical activity for older adults. Medicine and Science in Sports and Exercise, 30, 992-1008.
- Bain, L., Wilson, R., & Chaikind, E. (1989). Participant perceptions of exercise programs for overweight women. Research Quarterly for Exercise and Sport, 60, 134-143.
- Baley, J. (1955). Recreation and the aging process. Research Quarterly, 26, 1-7.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 84, 191-215.
- Behlendorf, B., MacRae, P., Vos Strache, C. (1999). Children's perceptions of physical activity for adults: Competence and appropriateness. Journal of Aging and Physical Activity, 7, 354-373.
- Blair, S., Wells, C., Weathers, R., & Paffenbarger, R. (1994). Chronic disease: The physical activity dose-response controversy. In R. K. Dishman (Ed.), Advances in exercise adherence (pp.31-54). Champaign, IL: Human Kinetics.
- Breast Cancer Society of Canada (2001). Facts about breast cancer [online]. Available: http://www.besc.ca/besc_html/health/health_fact.html.

Brewer, B., Holmes, M., Van Raalte, J., & McDevitt, A. (1997). Social physique anxiety and self-presentational aspects of exercise. In R. Lindor & M. Bar-Eli (Eds.), Innovations in Sport Psychology: Linking Theory and Practice (pp. 157-159). Presented at the International Society of Sport Psychology IX World Congress of Sport Psychology Proceedings, Netanya, Israel.

Christmas, C., & Andersen, R. (2000). Exercise and older patients: Guidelines for the clinician. Journal of the American Geriatrics Society, 48, 318-324.

Conrad, C. (1976). When you're young at heart. Aging, 258, 11-13.

Conroy, D., Botsford, D., & Motl, R. (1999). The Self-Presentation in Exercise Questionnaire: One factor, two factors, or both? Paper presented at the annual conference of the American Psychological Association, Washington D.C.

Conroy, D., Motl, R., & Hall, E. (2000). Progress toward construct validation of the Self-Presentation in Exercise Questionnaire (SPEQ). Journal of Sport and Exercise Psychology, 22, 21-38.

Conroy, D., Motl, R., & Hall, E. (1998). Progress toward construct validation of the Self-Presentation in Exercise Questionnaire (SPEQ). Paper presented at the annual conference of the Association for the Advancement of Applied Sport Psychology, Cape Cod, MA.

Courneya, K., & Friedenreich, C. (1999). Physical exercise and quality of life following cancer diagnosis: A literature review. Annals of Behavioral Medicine, 21, 171-179.

Crawford, S., & Eklund, R. (1994). Social physique anxiety, reasons for exercising, and attitudes toward exercise settings. Journal of Sport and Exercise Psychology, 16, 70-82.

Culos-Reed, S. N. (2000). Use of social-cognitive theories in the study of physical activity and fibromyalgia: Self-Efficacy Theory and the Theory of Planned Behavior. Unpublished doctoral dissertation, University of Waterloo, Ontario, Canada.

Dishman, R. (1982). Compliance/adherence in health-related exercise. Health Psychology, 1, 237-267.

Drinkwater, B. (1994). Does physical activity play a role in preventing osteoporosis? Research Quarterly for Exercise and Sport, 65, 197-206.

Dubert, P., & Martin, J. (1988). Exercise. In E. Blechman, & K. Brownell (Eds.), Handbook of Behavioral Medicine for Women (p. 291). New York: Pergamon.

Dunn, A., Andersen, R., & Jakicic, J. (1998). Lifestyle physical activity interventions: History, short- and long-term effects, and recommendations. American Journal of Preventive Medicine, 15, 266-297.

Eklund, R., & Crawford, S. (1994). Active women, social physique anxiety, and exercise. Journal of Sport and Exercise Psychology, 16, 431-448.

Ettinger, W., Burns, R., Messier, S., Applegate, W., Rejeski, W. J., Morgan, T., Shumaker, S., Berry, M., O'Toole, M., Monu, J., & Craven, T. (1997). A randomized trial comparing aerobic exercise and resistance exercise with health education program in older adults with knee osteoarthritis: The Fitness Arthritis and Seniors Trial (FAST). Journal of the American Medical Association, 277, 25-31.

Fife, R. (1997). Osteoarthritis: Epidemiology, pathology, and pathogenesis. In J. Klippel (Ed.), Primer on the Rheumatic Disease 2nd Edition (pp. 216-218). Atlanta, GA: Arthritis Foundation.

Frederick, C., & Morrison, C. (1996). Social physique anxiety: Personality constructs, motivations, exercise attitudes, and behaviors. Perceptual Motor Skills, 82, 963-972.

Frederick C. J., & Shaw, S. M. (1995). Body image as a leisure constraint: Examining the experience of aerobic exercise classes for young women. Leisure Sciences, 17, 57-73.

Gammage, K., Hall, C., Prapavessis, H., Madison, R., Haase, A., & Martin, K. A. (2001a). Self-presentational concerns in exercise: Validation of the Self-Presentation in Exercise Questionnaire (SPEQ). Submitted to Journal of Sport Sciences.

Gammage, K., Hall, C., & Martin, K. A. (2001b). Self-presentation in exercise contexts: Differences between high and low frequency exercisers. Submitted to Journal of Social Psychology.

Gammage, K., Martin, K. A., & Hall, C. (2001c). Self-presentational efficacy expectancy: Its influence on anxiety in an exercise context. Submitted to Self and Identity.

Gerike, A. (1990). On gray hair and oppressed brains. Journal of Women and Aging, 2, 35-46.

Gill, K., & Overdorf, V. (1994). Incentives for exercise in younger and older women. Journal of Sport Behavior, 17, 87-97.

Godin, G., & Shephard, R. (1985a). Gender differences in perceived physical self-efficacy among older individuals. Perceptual and Motor Skills, 60, 599-602.

Godin, G., & Shephard, R. (1985b). A simple method to assess exercise behavior in the community. Canadian Journal of Applied Sport Science, 10, 141-146.

Hart, E., Leary, M., & Rejeski, W. J. (1989). The measurement of social physique anxiety. Journal of Sport and Exercise Psychology, 11, 94-104.

Hausenblas, H. A., & Martin, K. A. (2000). Bodies on display: Female aerobics instructors and social physique anxiety. Women's Sport and Physical Activity Journal, 9, 1-14.

Health Canada. (1999). Canada's physical activity guide to healthy active living for older adults (Catalogue number H39-429/1999-2E). Ottawa, ON: Publications.

Health Canada. (1998). Canada's physical activity guide to healthy active living (Catalogue number H39-429/1998-2E). Ottawa, ON: Publications.

Kaplan, R., Sallis, J., & Patterson, T. (1993). Health and human behavior. New York, NY: McGraw-Hill Inc.

Katula, J., McAuley, E., Mihalko, S., & Bane, S. (1998). Mirror, mirror on the wall...exercise environment influences on self-efficacy. Journal of Social Behavior and Personality, 13, 319-332.

Khoury-Murphy, M., & Murphy, D. (1992). Southern (bar)belles: The cultural problematics of implementing a weight training program among older southern women. Play and Culture, 5, 409-419.

Krauss Whitbourne, S. (1998). Physical changes in the aging individual: Clinical implications. In I. Nordhus, G. VandenBos, S. Berg, & P. Fromholt (Eds.), Clinical Geropsychology (pp. 79-108). Washington, DC: American Psychological Association.

Lantz, C., Hardy, C., & Ainsworth, B. (1997). Social physique anxiety and perceived exercise behavior. Journal of Sport Behavior, 20, 83-93.

Lawrence, R., Helmick, C., Arnett, F., Devo, R., Felson, D., Giannini, E., Heyse, S., Hirsch, R., Hochberg, M., Humder, G., Liang, M., Pillemer, S., Steen, V., & Wolf, F. (1998). Estimates of the prevalence of arthritis an selected musculoskeletal disorders in the United States. Arthritis Rheumatology, 41, 778-799.

Leary, M. (1995). Self-presentation: Impression management and interpersonal behavior. Madison, WI: WCB Brown and Benchmark Publishers.

Leary, M. (1992). Self-presentational processes in exercise and sport. Journal of Sport and Exercise Psychology, 14, 339-351.

Leary, M., & Atherton, S. (1986). Self-efficacy, social anxiety, and inhibition in interpersonal encounters. Journal of Social and Clinical Psychology, 4, 256-267.

Leary, M., & Kowalski, R. (1990). Impression management: A literature review and two-component model. Psychological Bulletin, 107, 34-47.

Leary, M., Tchividjian, L., & Kraxberger, B. (1994). Self-presentation can be hazardous to you health: Impression management of health risk. Health Psychology, 13, 461-470.

Ledingham, J., Regan, M., Jones, A., & Doherty, M. (1993). Radiographic patterns and associations of osteoarthritis of the knee in patients referred to hospital. Annals of Rheumatic Diseases, 52, 520-526.

Maddux, J., Brawley, L., & Boykin, A. (1995). Self-efficacy and healthy behavior: Prevention, promotion, and detection. In J. Maddux (Ed.), Self-Efficacy, adaptation, and adjustment: Theory, research, and application (pp. 173-202). New York, NY: Plenum Press.

Maddux, J., Norton, L., Leary, M. (1988). Cognitive components of social anxiety: An investigation of the integration of self-presentation theory and self-efficacy theory. Journal of Social and Clinical Psychology, 6, 180-190.

Martin, K. A. (2000). Validity and reliability of the Social Physique Anxiety Scale. In J. Maltby, C. A. Lewis, & A. Hill (Eds.), Commissioned reviews on 300 Psychological Tests (pp. 131-135). Wales, UK: Edwin Mellen Press.

Martin, K. A., & Leary, M. R. (in press). Single, physically active, female: The effects of information about exercise participation and body weight on perceptions of young women. Journal of Social Behavior and Personality.

Martin, K. A., Leary, M. R., & Rejeski, W. J. (2000). Self-presentational concerns in older adults: Implications for health and well-being. Basic and Applied Social Psychology, 22, 169-179.

Martin, K. A., & Sinden, A. R. (2001). Who will stay and who will go? A review of older adults' adherence to randomized controlled trials of exercise. Journal of Aging and Physical Activity, 9, 91-114.

Martin, K. A., Sinden, A. R., & Fleming, J. C. (2000). Inactivity may be hazardous to you image: The effects of exercise participation on impression formation. Journal of Sport and Exercise Psychology, 22, 283-291.

McAuley, E., Bane, S., & Mihalko, S. (1995). Exercise in middle-aged adults: Self-efficacy and self-presentational outcomes. Preventive Medicine, 24, 319-328.

McAuley, E., Bane, S., Rudolph, D., & Lox, C. (1995). Physique anxiety and exercise in middle-aged adults. Journal of Gerontology: Psychological Sciences, 50B, P229-P235.

McAuley, E., & Burman, G. (1993). The social physique anxiety scale: construct validity in adolescent females. Medicine and Sciences in Sport and Exercise, 25, 1049-1053.

McAuley, E., & Mihalko, S. (1998). Measuring exercise-related self-efficacy. In J. Dura (Ed.), Advances in sport and exercise psychology measurement (pp. 371-390). Morgantown, WV: Fitness Information Technology.

McCartney, N., Hicks, A. L., Martin, J., & Webber, C. E. (1995). Long-term resistance training in the elderly: Effects on dynamic strength, exercise capacity, muscle, and bone. Journal of Gerontology: Biological Sciences, 50A, B97-B104.

Nunnally, J. C. (1978). Psychometric theory (2nd Edition). New York, NY: McGraw-Hill.

O'Brien Cousins, S. (2000). "My heart couldn't take it": Older women's beliefs about exercise benefits and risks. Journal of Gerontology: Psychological Sciences, 55B, P283-P294.

Ostrow, A., & Dzewaltowski, D. (1986). Older adults' perceptions of physical activity participation based on age-role and sex-role appropriateness. Research Quarterly for Exercise and Sport, 57, 167-169.

Ostrow, A., Jones, D., & Spiker, D. (1981). Age role expectations and sex role expectations for selected sport activities. Research Quarterly for Exercise and Sport, 52, 216-227.

Ostrow, A., Keener, R., & Perry, S. (1987). The age grading of physical activity among children. International Journal of Aging and Human Development, 24, 101-111.

Ransdell, L., Wells, C., Manore, M., Swan, P., & Corbin, C. (1998). Social physique anxiety in postmenopausal women. Journal of women and aging, 10, 19-39.

Rejeski, W. J., Brawley, L. R., & Shumaker, S. A. (1996). Physical activity and health-related quality of life. Exercise and Sport Sciences Reviews, 24, 71-108.

Ross, M., Tait, R., Grossberg, G., Handal, P., Brandeberry, L., & Nakra, R. (1989). Age differences in body consciousness. Journal of Gerontology: Psychological Sciences, 44, P23-24.

Rossey, L., Buckelew, S., Dorr, N., Hagglund, K., Thayer, J., McIntosh, M., Hewitt, J., & Johnson, J. (1999). A meta-analysis of fibromyalgia treatment interventions. Annals of Behavioral Medicine, 21, 180-191.

Ruuskanen, J., Ruoppila, I. (1995). Physical activity and psychological well-being among people aged 65 to 84 years. Age and Ageing, 24, 292-296.

Ryckman, R., Robbins, M., Thornton, B., & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. Journal of Personality and Social Psychology, 42, 891-900.

Sallis, J., & Owen, N. (1999). Physical activity and behavioral medicine. Thousand Oaks, CA: Sage Publications, Inc.

Sandmark, H., Hogstedt, C., Lewold, S., & Vingard, E. (1999). Osteoarthritis of the knee in men and women in association with overweight, smoking, and hormone therapy. Annals of Rheumatic Diseases, 58, 151-155.

Schlenker, B., & Leary, M. (1982). Social anxiety and self-presentation: A conceptualization and model. Psychological Bulletin, 92, 641-669.

Shephard, R., Montelpare, W., Berridge, M., & Flowers, J. (1986). Influence of exercise and of lifestyle education upon attitudes to exercise of older people. Journal of Sports Medicine and Physical Fitness, 26, 175-179.

Sidney, K., & Shephard, R. (1976). Attitudes towards health and physical activity in the elderly. Effects of a physical training program. Medicine and Science in Sports, 8, 246-252.

Silberstein, L., Stiegel-Moore, R., Timko, C., & Rodin, J. (1988). Behavioral and psychological implications of body dissatisfaction: Do men and women differ? Sex Roles, 19, 219-232.

Sissons, H. (1983). Osteoarthritis of the knee: A review. Journal of Rheumatology, 9, 76-77.

Spink, K. (1992). Relation of anxiety about social physique to location of participation in physical activity. Perceptual and Motor Skills, 74, 1075-1078.

Stidwell, H., & Rimmer, J. (1995). Measurement of physical self-efficacy in an elderly population. Clinical Kinesiology, 42, 58-63.

The Arthritis Society (2001). Fibromyalgia [online]. Available: <http://www.arthritis.ca>

Figgemann, M., & Williamson, S. (2000). The effect of exercise on body satisfaction and self-esteem as a function of gender and age. Sex Roles, 43, 119-127.

Treasure, D., Lox, C., & Lawton, B. (1998). Determinants of physical activity in a sedentary, obese, female population. Journal of Sport and Exercise Psychology, 20, 218-224.

U.S. Department of Health and Human Services. (1996). Physical activity and health: A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Promotion.

Vertinsky, P. (1998). "Run, Jane, run": Central tensions in the current debate about enhancing women's health through exercise. Women and Health, 27, 81-111.

Washburn, R., Smith, K., Jette, A., & Janney, C. (1992). The Physical Activity Scale for the Elderly (PASE): Development and validation. Journal of Clinical Epidemiology, 46, 153-162.

Footnotes

1At the time of conducting Study 1, the Physical Self-Presentation Confidence Subscale of the Physical Self-Efficacy Scale (Ryckman et al., 1982) was the only available measure of self-presentational efficacy, a construct of interest for Study 2. Thus, the Physical Self-Efficacy Scale and its subscales were included in Study 1. Recently however, a specific self-presentational efficacy measure for exercise settings was developed (see Gammage, Hall & Martin, 2001b; Gammage, Martin, & Hall, 2001c) and is now considered to be a better measure of self-presentational efficacy in exercise. Because this new measure was not available when Study 1 was conducted, it was not included.

2To ensure that there were no differences between data collected from Adrienne R. Sinden and Jennifer Angove, a MANOVA was conducted. The independent variable was the researcher (Adrienne R. Sinden / Jennifer Angove) and the dependent variables were body mass index, physical activity level, social physique anxiety, impression motivation, attitude towards exercise settings, and pre- and post-self-presentational efficacy. The overall MANOVA was not significant, $F(7, 64) = .707, p > .60$. Thus, it seems that there were no differences between data collected from the two researchers. Consequently, the data were collapsed for all subsequently analyses.

3In Crawford and Eklund's two studies (1994) of younger women, the psychological constructs of impression motivation, and pre-self-presentational efficacy were not evaluated. As well, only the follow-up study (Eklund & Crawford, 1994) measured a

biological factor, percent body fat, and the present investigation measured body mass index.

Appendix A

Study 1 Measures, Subscales, and Items:

The Social Physique Anxiety Scale, the Reasons for Exercise Inventory,
and the Physical Self-Efficacy Scale

The Social Physique Anxiety Scale
(Hart, Leary, & Rejeski, 1989)

For each item indicate the degree to which the statement is characteristic or true of you by using the following scale from 1 to 5.

1	2	3	4	5
not at all	slightly	moderately	very	extremely

1. I am comfortable with the appearance of my physique__ __.
2. I would never worry about wearing clothes that might make me look too thin or overweight_____.
3. I wish I wasn't so uptight about my physique/figure_ __ _.
4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively_____.
5. When I look in the mirror I feel good about my physique/figure_ __ _.
6. Unattractive features of my physique/figure make me nervous in certain social settings_____.
7. In the presence of others, I feel apprehensive about my physique/figure_ __ _.
8. I am comfortable with how fit my body appears to others_____.
9. It would make me uncomfortable to know others were evaluating my physique/figure_____.
10. When it comes to displaying my physique/figure to others, I am a shy person_ __ _.
11. I usually feel relaxed when it is obvious that others are looking at my physique/figure_____.
12. When in a bathing suit, I often feel nervous about the shape of my body_____.

NOTE: Items 1, 2, 5, 8, and 11 were reverse scored.

Reasons for Exercising Inventory
(Silberstein, Striegel-Moore, Timko, & Rodin, 1988)

People exercise for a variety of reasons. When people are asked why they exercise, their answers are sometimes based on the reasons they believe they *should* have for exercising. What we want to know are the reasons people *actually* have for exercising. Please respond to the items below as honestly as possible.

To what extent is each of the following an important reason that you have for exercising? Use the scale below, ranging from 1 to 7, in giving your answers.

1	2	3	4	5	6	7
not at all important			moderately important			extremely important

Weight Control

1. To be slim _____
2. To lose weight _____
3. To maintain my current weight _____

Fitness

4. To improve my muscle tone _____
5. To improve my strength _____
6. To improve my endurance, stamina _____
7. To improve my flexibility, coordination _____

Mood

8. To cope with sadness, depression _____
9. To cope with stress, anxiety _____
10. To increase my energy level _____
11. To improve my mood _____

Health

12. To improve my cardiovascular fitness _____
13. To improve my overall health _____
14. To increase my resistance to illness and disease _____
15. To maintain my physical well-being _____

Attractiveness

- 16. To improve my appearance ____
- 17. To be attractive to members of the opposite sex ____
- 18. To be sexually desirable ____

Enjoyment

- 19. To meet new people ____
- 20. To socialize with friends ____
- 21. To have fun ____

1one

- 22. To redistribute my weight ____
- 23. To improve my overall body shape ____
- 24. To alter a specific area of my body ____

NOTE: Items were presented in random order.

Physical Self-Efficacy Scale
(Ryckman, Robbins, Thornton, & Cantrell, 1982)

For each item indicate the degree to which you agree with the statement by using the following scale from 1 to 6.

1	2	3	4	5	6
strongly agree					strongly disagree

Perceived Physical Ability

1. I have excellent reflexes_____.
2. I am not agile and graceful_____.
3. My physique is quite strong_____.
4. I can't run fast_____.
5. I don't feel in control when I take tests involving physical dexterity_____.
6. I have poor muscle tone_____.
7. I take little pride in my ability in sports_____.
8. My speed has helped me out of some tight spots_____.
9. I have a strong grip_____.
10. Because of my agility, I have been able to do things which many others could not do_____.

Physical Self-Presentation Confidence

11. I am rarely embarrassed by my voice_____.
12. Sometimes I don't hold up well under stress_____.
13. I have physical defects that sometimes bother me_____.
14. I am never intimidated by the thought of a sexual encounter_____.
15. People think negative things about me because of my posture_____.
16. I am not hesitant about disagreeing with people bigger than me_____.
17. Athletic people usually do not receive more attention than me_____.
18. I am sometimes envious of those better looking than myself_____.
19. Sometimes my laugh embarrasses me_____.
20. I am not concerned with the impression my physique makes on others_____.
21. Sometimes I feel uncomfortable shaking hands because my hands are clammy_____.
22. I find that I am not accident prone_____.

NOTE: Items were presented in random order.

Appendix B

Study 2 Measures, Subscales, and Items:

The Godin Leisure-Time Exercise Questionnaire, the Social Physique Anxiety Scale, the Reasons for Exercise Inventory, Self-Presentational Concerns in Exercise Questionnaire (Impression Motivation), Self-Presentational Efficacy Expectancy Scale for Exercise, and the Modified Attitudes Towards Exercise Setting Questionnaire

The Godin Leisure-Time Exercise Questionnaire
(Godin & Shephard, 1985b)

Consider a typical 7-day period (a week), how many times **on average** do you do the following kinds of exercise for more than 15 minutes:

1) **Strenuous Exercise**: Heart Beats Rapidly

eg: jogging, swimming, cycling, singles tennis, aerobic dance, skiing (downhill or cross-country), heavy housework, lawn work / yard care, shoveling snow, or other similar activities?

Number of Times per week = _____

2) **Moderate Exercise**: Not Exhausting

eg: fast walking, doubles tennis, ballroom / folk dancing, hunting, ice skating, golf without a cart, softball, outdoor gardening, or other similar activities?

Number of Times per week = _____

3) **Mild Exercise**: Minimal Effort

eg: easy walking, yoga, bowling, golf with a cart, shuffleboard, fishing from a boat or pier, light housework, or other similar activities?

Number of Times per week = _____

The Social Physique Anxiety Scale
(Hart, Leary, & Rejeski, 1989)

For each item indicate the degree to which the statement is characteristic or true of you by using the following scale from 1 to 5.

1	2	3	4	5
not at all	slightly	moderately	very	extremely

1. I am comfortable with the appearance of my physique_____.
2. I would never worry about wearing clothes that might make me look too thin or overweight_____.
3. I wish I wasn't so uptight about my physique/figure_____.
4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively_____.
5. When I look in the mirror I feel good about my physique/figure_____.
6. Unattractive features of my physique/figure make me nervous in certain social settings_____.
7. In the presence of others, I feel apprehensive about my physique/figure_____.
8. I am comfortable with how fit my body appears to others_____.
9. It would make me uncomfortable to know others were evaluating my physique/figure_____.
10. When it comes to displaying my physique/figure to others, I am a shy person _____.
11. I usually feel relaxed when it is obvious that others are looking at my physique/figure_____.
12. When in a bathing suit, I often feel nervous about the shape of my body_____.

NOTE: Items, 1, 2, 5, 8, and 11 were reversed scored.

Reasons for Exercising Inventory
(Silberstein, Striegel-Moore, Timko, & Rodin, 1988)

People exercise for a variety of reasons. When people are asked why they exercise, their answers are sometimes based on the reasons they believe they *should* have for exercising. What we want to know are the reasons people *actually* have for exercising. Please respond to the items below as honestly as possible.

To what extent is each of the following an important reason that you have for exercising? Use the scale below, ranging from 1 to 7, in giving your answers.

1	2	3	4	5	6	7
not at all important			moderately important			extremely important

Weight Control

1. To be slim _____
2. To lose weight _____
3. To maintain my current weight _____

Fitness

4. To improve my muscle tone _____
5. To improve my strength _____
6. To improve my endurance, stamina _____
7. To improve my flexibility, coordination _____

Mood

8. To cope with sadness, depression _____
9. To cope with stress, anxiety _____
10. To increase my energy level _____
11. To improve my mood _____

Health

12. To improve my cardiovascular fitness _____
13. To improve my overall health _____
14. To increase my resistance to illness and disease _____
15. To maintain my physical well-being _____

Attractiveness

- 16. To improve my appearance _____
- 17. To be attractive to members of the opposite sex _____
- 18. To be sexually desirable _____

Enjoyment

- 19. To meet new people _____
- 20. To socialize with friends _____
- 21. To have fun _____

Tone

- 22. To redistribute my weight _____
- 23. To improve my overall body shape _____
- 24. To alter a specific area of my body _____

NOTE: Items were presented in random order.

Self-Presentational Concerns in Exercise (Impression Motivation)
(Gammage, et al., 2001a)

For each item please indicate the appropriate number from 1 (strongly disagree) to 6 (strongly agree) using the scale below.

1	2	3	4	5	6
strongly disagree					strongly agree

1. I value the attention and praise of others when they regard me as being in good shape____.
2. I enjoy the praise I receive for exercising_____.
3. I try to appear toned or fit to others_____.
4. I value the attention and praise offered by others in regard to appearing physically fit_____.

Self-Presentational Efficacy Expectancy Scale for Exercise
(Gammage, Martin, & Hall, 2001c)

Think about exercising with a group of older adults (e.g., walking). Using the values on this scale (0 – 100%), please indicate how confident you are for each of the following:

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
not at										completely
all confident										confident

I am confident that

1. Other group members will think that I am coordinated_____.
2. Other group members will think that I have a fit body_____.
3. Other group members will think that I have good stamina_____.
4. Other group members will think that I am a regular exerciser_____.
5. Other group members will think that I am healthy_____.

Modified Attitude Towards Exercise Setting Questionnaire
(Fklund & Crawford, 1994)

For the following questions, please keep in mind the walking exercise video that you just observed. Please rate each statement on the scale of 1 (not at all) to 5 (extremely) seen below by indicating the appropriate number.

1	2	3	4	5
not at all				extremely

1. This would be a good group to exercise with_____.
2. I would be comfortable exercising with this class_____.
3. I would enjoy exercising with this group of people_____.
4. I would fit in with this exercise class_____.
5. I would like participating with this class regularly_____.
6. I would talk with members of the group_____.
7. I would introduce myself to members of the group_____.
8. I would have a coffee / lunch with members of the group_____.

Appendix C

Details of the Video Pilot Study

Pilot Study

To determine whether each videotape was identical in every regard except for the manipulation of the clothing worn by the exercisers, a pilot study was conducted ($N = 9$ females, aged 45-75 years). Using a within-subjects design, participants watched both videos: four participants watched the conservative video first and 5 participants watched the revealing video first. Participants were then asked: "Did you observe any difference(s) between the two videotapes?" All participants indicated that there was a difference between the videotapes. An open-ended question indicated that 4 participants said the clothing was different. 1 participant noted that the exercisers were more lively in the conservative attire video, 1 participant said the exercisers "doubled-up" in the conservative attire video, and the remaining 3 participants did not provide an answer. Follow-up questions revealed that the participants correctly categorized the exercisers in both videotapes as seniors (not young adults or middle-aged adults), as consisting of approximately 6-15 members, and as consisting of 1 male. Furthermore, 100% of the sample indicated that the videotape in which the exercisers were wearing more revealing clothing was the sleeveless shirts and shorts videotape. Finally, to ensure that the social interaction between the exercisers was identical on each videotape, participants were asked whether the social interaction differed across videos. Results were evenly distributed, 4 participants did not believe there was a difference between the videotapes, 3 participants believed the revealing attire videotape to be more socially interactive, and 2 participants believed the conservative attire to be more socially interactive.

The results of this pilot study indicated that overall, exercise class members in the conservative and revealing attire videotapes were perceived as seniors and that the clothing worn by the exercisers was the most salient difference between the videos. Specifically, the most revealing attire was worn by exercisers in the sleeveless shirts and shorts videotape.