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**ASSOCIATIONS BETWEEN MOTHERS' AND DAUGHTERS' PHYSICAL
ACTIVITY BEHAVIOR, MOTIVATION, AND BODY IMAGE PERCEPTIONS:
A MULTI-METHOD STUDY**

by

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the School of Graduate Studies and Research
In Partial Fulfillment of the Requirements for the Degree of
Master of Arts in Human Kinetics**

School of Human Kinetics

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Ottawa, Canada

2001

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THE BEAUTY OF THE HUMAN MIND...

TO DO ANYTHING THAT YOU WANT TO DO, THAT IS THE
STRENGTH OF THE HUMAN WILL...

TO TRUST YOURSELF, TO TEST YOUR LIMITS, THAT IS THE
COURAGE TO SUCCEED.

-Bernard Edmonds

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ABSTRACT

The purpose of this thesis was to examine the associations among mothers' and daughters' physical activity behavior, motivation and body image perceptions using a multi-method approach. Phase 1 of this study was quantitative, and served to investigate the relationships between mothers' and daughters' physical activity behavior and motivation. Social Learning Theory (Bandura, 1977) and the Deviancy Model (Jessor & Jessor, 1977) were both used in order to investigate mother-daughter activity behaviors. For Phase 1, three groups were established based on the mothers' scores from the questionnaire: non-, moderate and high frequency exercisers. No significant differences were found in Phase 1; however, a chi-square analysis revealed that the non-exercising mothers had a majority of their daughters report they were high frequency exercisers. Self-Determination Theory (Deci & Ryan, 1985) was used for physical activity motivation. Correlations revealed no significant relationships between the mothers' and the daughters' physical activity motivations. However, a trend between the mothers' introjected and the daughters' amotivated score arose which indicated that those mothers with high introjection had daughters with high amotivation. In order to further examine the mother-daughter relationship and specifically to investigate body image perceptions, a second qualitative phase (Phase 2) was conducted. Phase 2 consisted of interviewing 10 mothers and daughters (5 mother-daughter pairs). For this phase, a semi-structured interview guide was developed to further assess motivation and body image perceptions of both the mothers' and daughters'. Also, a Body Esteem Scale (Mendelson, White & Mendelson, 1997-98) was administered to the interviewees before conducting the interview. With regards to body image perceptions, results from the interviews and Body

Esteem Scale suggest mothers do influence their daughters can adopt comparable perceptions of their bodies. Findings from Phase 1 and 2 are discussed in light of past literature, and knowledge and practical implications are addressed. Recommendations for further studies pertaining to the mother-daughter relationship are also discussed.

CHAPTER 1

Introduction

Parental influence is a topic that has received much research attention.

Researchers have repeatedly found that parents play an important role in the maturity of their children (Brustad, 1992, 1993a; Freedson & Evenson, 1991; Mota & Queiros, 1996; Sallis, 1991). Whether it is learning to throw a ball or developing a particular religious belief, parents have been found to be a primary influence in their youth's development (Jacobs & Eccles, 1992; Taylor Baranowski, & Sallis, 1994). Hopper, Gruber, Munoz, & Herb (1992) explained that children develop health attitudes and behaviors by observing parental attitudes and behaviors. In addition, Yang, Telama, & Laakso (1994) found that same-sex influences were much stronger than opposite-sex influences in the area of parental influence and youth's physical activity behaviors. However, only a limited amount of research has specifically investigated same-sex relationships in a health context and even less have examined the associations between mothers and daughters physical activity behaviors. Many researchers have concluded that the mother-daughter relationship is in need of further study because most of the research is limited in the understanding of the relationship parents have with their same sex children (Hopper et al., 1992; Jacob & Eccles, 1992; Yang et al., 1994). This is partly due to the use of only one type of methodology primarily being quantitative (Brustad, 1996; Colley, Elington, & Elliot, 1992; Mota & Queiros, 1996; Wold & Anderssen 1992; Yang et al., 1996). Therefore, a multi-method approach was used for this research.

To put this study of the mother-daughter relationship in its proper context requires an assessment of the unique social system to which this dyad belongs, namely the family

(Pike & Rodin, 1991). Family members are said to be critical in the development of youth's sports involvement, physical activity, and other health-related behaviors due to their presence in most of the developmental stages, including adolescence. Adolescence is an important period for learning health-related behavior patterns, for example, physical activity, that will carry into adulthood (Anderssen & Wold, 1992). Youth's physical activity behaviors affect both their current health status and their predisposition to a variety of potential health risks (Calfas & Taylor, 1994; Sallis & Patrick, 1994). Thus, the challenge in this area is to find out how adolescents can be influenced towards establishing regular physical activity (Mota & Queiros, 1996; Wold & Anderssen, 1990). A theory that has been utilized to better understand behavior in adolescence and other developmental stages is Social Learning Theory (SLT; Bandura, 1977).

Albert Bandura developed Social Learning Theory to help explain how youths' develop and adopt certain beliefs and behaviors. This theory has been used to investigate family and other social influences particularly because SLT theorizes that youths learn behaviors from significant others and/or role models (i.e., parents, peers). By observing the behavior of their most salient socializing agents (e.g. parents), youths imitate a similar pattern of behavior.

Studies such as Anderssen and Wold, (1992), Brustad, (1996), and Moore et al., (1991) have used SLT to help understand youth's behavior in the physical activity context. For instance, Moore et al., (1991) found that youths of active parents were six times more likely to become active than youths of inactive parents. Furthermore, Anderssen & Wold's (1992) research investigated the influence of parents and friends on youths' self-reported levels of leisure-time physical activity, the conclusions of their

study were that parental and peer physical activity level and parental and peer support for physical activity influenced the reported physical activity of the respondents. For their research, they used SLT because this theory supports the idea that “a lasting chain of reinforcements from significant others (directly and through modeling) may explain the mechanisms through which significant others influence children’s and adolescent’s participation in leisure-time physical activity” (Anderssen & Wold, 1992, p. 341). However, there are limitations to SLT. Indeed, a growing number of studies indicate that youths do not always adopt the same physical activity habits as their parents (Biddle & Goudas, 1996; Gaumont & Fortier, 2001; Godin & Shepard, 1986). A model, which does elaborate on Social Learning Theory and provides support to why some youths adopt opposite behaviors of their parents is the Deviancy Model (DM: Jessor & Jessor, 1977).

The Deviancy Model discusses the relation between a parent and a child. Specifically, the model predicts that the closer a parent is to their child, the higher the likeliness that the child will adopt similar behaviors to that of his/her parent(s). The issue of closeness is based on the level of intimacy between a parent and a child. On the other hand, if a child feels distant from his/her parent(s), they are more likely to adopt a deviant or opposite behavior. The Deviancy Model is a possible explanation as to why some daughters do not adopt similar physical activity behaviors as their mothers. Thus, the use of the Deviancy Model may help in better understanding the same-sex relationship specifically between a mother and a daughter. Therefore, this research used SLT and DM in order to investigate whether the association between the mothers’ and daughters’ the physical activity behaviors were similar or opposite.

In the last decade, many studies have been conducted regarding parental influences on youths' physical activity, but only a few studies have investigated the influence of parents on youths' physical activity motivation (Brustad, 1993b; Frederick & Ryan, 1994). Therefore, relatively little is known about this phenomenon and even less is known about maternal influences. Accordingly, another purpose of this study was to investigate the associations between mothers' and daughters' physical activity motivation. One specific theoretical framework has been used to investigate parental influence and motivation is Deci and Ryan's (1985) Self-Determination Theory (SDT) (Cellar & Wade, 1988; Gaumont & Fortier, 2000; Wild, Enzle, & Hawkins, 1992). Therefore, this theory was used to help understand the type of motivation the mothers and daughters have toward physical activity. Self-Determination Theory multi-dimensionally differentiates between various types of motivation (three types of intrinsic, three types of extrinsic, and amotivation) based on the degree to which they are considered self-determined and self-regulating (Deci & Ryan, 1985). The use of this theory can help in understanding the broad range of motivation types, which can aid in further understanding the mother-daughter relationship and specifically the associations between mothers' and daughters' physical activity motivation.

On the other hand, there has been much research done in the area of women's body image perceptions. However, there has been a lack of empirical research exploring the mother-daughter relationship and body image (Diem, 2000). From a socio-cultural perspective it has been argued that there is mounting pressure on women in society to achieve a body weight and size through dieting that is both unrealistic and unhealthy (see Garner, Garfinkel, Schwartz, & Thompson, 1980; Johnson & Pure, 1986; Pike & Rodin,

1991; Rodin, Silberstein, & Streigel-Moore, 1984 for reviews). In fact, an examination concerning societal pressures, dieting and weight, has become so well known that a moderate degree of concern for their bodies is normative for women (Pike & Rodin, 1991; Thelen & Cormier, 1995). Therefore, whether or not the degree of concern passes on from the mother to the daughter was investigated in the present study. However, not much research has focused on this. Therefore, a third purpose was to investigate the associations between mothers' and daughters' body image perceptions.

Research on mother-daughter relationships has primarily used a quantitative approach therefore limiting the amount of knowledge that can be gained on this issue. Consequently, only a few studies have used a mixed methodology to examine the mother-daughter relationship (Mullender, Debbonnaire, Hague, Kelly & Malos, 1998). Therefore, a multi-method approach for data collection and analysis was utilized in order to better generalize the results, while gaining more in-depth perceptions into these phenomena. More specifically, a quantitative phase (Phase 1) was employed to target mothers and daughters, and specifically assessed the relationships between their physical activity behaviors and motivation. This was followed by a small number of in-depth interviews (Phase 2) with mothers and daughters from Phase 1 who stated they would be interested in participating in another study. This was done in order to investigate the associations between body image perceptions. This particular research was important because it brought new insights on the mother-daughter relationship using two different methods: quantitative (questionnaires) and qualitative (interviews).

Organization of the Remainder of this Thesis

The remainder of this thesis is organized into four chapters. Chapter 2 is a review of literature on the phenomenon of parental influence in each of the three categories of interest in the present study: physical activity behaviors, physical activity motivation, and body image perceptions, as well as an overview of the advantages of using multi-method approach to data collection and analysis. Also, within Chapter 2 there is a revised description of the present study, along with its hypotheses and significance. As this thesis is written in article format, Chapter 3 includes a journal article, *Associations between Mothers' and Daughters' Physical Activity Behavior, Motivation, and Body Image Perceptions: A Multi-Method Study*, that has been prepared for submission to the academic journal of *Psychology of Women Quarterly*. Following this article, Chapter 4 (a supplementary results chapter) provides further discussion of other themes that arose during the qualitative interviews of Phase 2 of this thesis. However, in entirety, the interviews were too extensive to discuss in the journal article, and were consequently placed in this additional chapter (Chapter 4). Lastly, in Chapter 5 a general discussion of the findings, and implications of the findings are presented.

A number of appendices are also included in this thesis. Appendix A describes the contributions of each author that appears on the title page of the journal article. Appendix B discusses the mother questionnaires while Appendix C discusses the daughter questionnaires that were administered. Appendix D and E follow, which include the Body Esteem Scale for Adults and the interview guide used in Phase 2 respectively. Finally, the ethics approval documentation is included in Appendix F.

CHAPTER II

Review of Literature

This chapter provides an overview of previous studies conducted in the area of parental influence. First, an overview of this area is presented, followed by a section on each of the concepts related to parental influences. Second, literature on parental influence on physical activity behaviors, motivation to participate in physical activity, and body image perceptions are all reviewed separately. Third, a discussion of Social Learning Theory (SLT; Bandura, 1977) and the Deviancy Model (DM; Jessor & Jessor, 1977) is completed in order to investigate the pattern in which adolescents adopt similar or opposite behaviors of their parent(s). Fourth, within the section for motivation to participate in physical activity, the application of Self-Determination Theory (SDT; Deci & Ryan, 1985; 1991) is explained. This chapter concludes with a presentation of the purpose, hypotheses, and significance of the present study.

Parental Influence in the Health Context

The U.S. Department of Health and Human Services (USDHHS, 1998) explains that the family is the immediate source and primary context for health information. More specifically, it appears as though the attitudes and behaviors of physical activity and diet are nurtured in the home (Hopper et al., 1992). Therefore, it can be assumed that parents are one of the most influential socializing agents for youths with regards to health. To investigate parental influences, it is important to examine socialization because it is at the root of the concept. In this particular case, socialization is the seed to begin exploring this topic. Socialization has been defined as “the process whereby individuals learn skills, traits, values, attitudes, norms, and knowledge associated with performance of present or

anticipated social roles” (McPherson & Brown, 1988, p. 297). Parental socialization processes have been consistently linked to youths’ participation in physical activity and other health behaviors such as dieting (Brustad, 1996; Moore, et al., 1991; Mota & Quieros, 1996; Sallis, 1991; Wood-Baker, Whisman, & Brownell, 2000).

Parental Influence on Youths’ Physical Activity Behaviors

Although parents can influence their youths’ physical activity behaviors in multiple ways, researchers have repeatedly found that adolescents of parents who participate in physical activity are more likely to participate in physical activity (themselves) (Anderssen & Wold, 1992; Brustad, 1996; Freedson & Evenson, 1991; Hovell, Kolody, Sallis & Black, 1995; Moore et al., 1991; Mota & Queiros, 1996; Sallis, Alcaraz, et al., 1992; Yang et al., 1996). Moore et al., (1991) found that youths of active mothers were twice as likely to be active than children of inactive parents. In addition, researchers have found that mothers have a greater influence on their daughters’ physical activity behaviors than do fathers, whereas fathers are more likely to influence their sons (Gregson & Colley, 1986; Pike & Rodin, 1991; Smolak, Levine & Schermer, 1999; Streigel-Moore & Kearney-Cooke, 1994; Thelen & Cormier, 1995; Wold & Anderssen, 1992; Yang et al., 1996). Yang et al., (1996) conducted a study (which used a random sample) of 9 to 15 year old boys and girls and their parents. Participants were followed for twelve years at three-year intervals by means of a short questionnaire concerning physical activity. Results revealed that a mother’s physical activity influenced her daughter(s) physical activity, whereas a father’s physical activity influenced his son(s) physical activity. One concept that may explain why some daughters imitate or adopt

similar behaviors to these of their mothers is observational learning, which is explained by Bandura's (1977) Social Learning Theory.

Social Learning Theory. SLT emphasized the important influences of social factors on behavior. It states that children learn mostly through observation and modeling. Bandura (1986) explains that modeling is one of the most effective ways to convey information about the rules of producing a new behavior. He also clarifies that observation and modeling represent two different types of learning styles for youths. For instance, when a youth observes a behavior, they do not necessarily attempt to perform the behavior, however when a youth models a behavior, they do attempt to perform the behavior. According to SLT, attitudes and beliefs are observed and/or modeled from significant others and/or role models (e.g., parents). By observing the behavior from an important significant other, youths adopt or imitate similar patterns of behavior.

Observational learning is one concept that may possibly explain why some daughters imitate or adopt similar behaviors of their mothers. "Observational learning is shown most clearly when models (e.g., mothers) exhibit novel patterns of thought and behavior which observers (e.g., daughters) did not already possess but which, following observation, they can produce in similar form" (Bandura, 1986, pg. 49). In the social cognitive analysis of observational learning, modeling is thought to be one of the most effective ways to convey information. By observing modeled performances, individuals gain knowledge about the dynamic structure of the skill being acquired. Repeated opportunities to observe the modeled activities enable observers to discover the essential features of the skill, organize, and verify what they know, and give special attention to missing aspects (Bandura, 1998). Although, SLT has helped in understanding how youths

adopt similar behaviors to those their parents and has been supported by numerous studies (Perusse, Tremblay, LeBlanc, & Bouchard, 1989; Sallis, Simons-Morton, et al., 1992; Sallis, Patterson, Buono, Atkins, & Nader, 1989), it does not explain why some youths adopt opposite behaviors of significant others. In the physical activity context, several researchers (e.g., Biddle & Goudas, 1996; Gaumont & Fortier, 2001; Godin & Shepard, 1986) have found that youths sometimes adopt opposite behaviors to those of their parents. One model that explains why some youths adopt opposite behaviors of significant others is the Deviancy Model (Jessor & Jessor, 1977).

Deviancy Model. The extensive research on parental influence has allowed for some researchers to discover why some youths adopt opposite behaviors to those of their parents (Brittain, 1963; Kandel & Andrews, 1987; Wilks, 1986; Young & Ferguson, 1979). It is believed by some researchers that parental influence on adolescent behavior varies with the quality of the attachment between the adolescent and the parent(s) (Ashby-Wills & Cleary, 1996; Turner, Irwin, Tschann, & Millstein, 1993). Research by Ashby-Wills and Cleary (1996) indicated that in order to address the issue of parental influence, one must index the parental support through measures of autonomy in the parent-youth relationship or of adolescents' perceived support from parents for helping them deal with problems. Developing autonomy from parents during adolescence is believed to be an important social task. "Researchers in the field of adolescent development have concluded that a major social task of adolescence is to develop autonomy from parents while simultaneously maintaining an appropriate degree of attachment in the family" (Hill & Holmbeck, 1987, 223). Allen, Arber, and Leadbeater (1991) suggested that adolescent problem behaviors (i.e., lack of physical activity) are

influenced by parent-adolescent attachment and by the familial context in which adolescents strive for autonomy.

“According to the Allen et al.’s, (1991) framework, attachment to parents mediates the link between poor parenting and subsequent delinquency. Therefore, it can be said that, if adolescents are unable to achieve autonomy within the family context, they may sever their ties with parents as a source of guidance, support, and security, even in times of distress and need. For the detached adolescent, risk behaviors may reinforce the premature emotional separation from the family” (Turner et al., 1993 p. 201).

In addition, work on parent-youth attachment includes Jessor & Jessor’s (1977) Deviancy Model. The Deviancy Model is based on the assumption that adolescent problem behaviors are based on alienation from conventional social institutions and rejection of mainstream social values. Thus, an adolescent may feel unsupported by his/her parent(s) if the youth does not adopt similar social institutions and/or values to those of his/her parent. Therefore, it can be said that if the adolescent will be less accepting of conventional social values and more disposed to deviance-prone behaviors such as a drinking (Ashby-Wills & Cleary, 1996).

The Deviancy Model explains that adolescents may not develop similar behaviors to his/her parents simply out of rebellion. An adolescent may adopt opposite behaviors of their parent because of the lack of attachment between the pair. Attachment between a parent and a youth is important in order for the youth to model a behavior (Jessor & Jessor, 1977). Furthermore, researchers have discovered that attachment is a concept, which can reduce deviant behaviors. Many researchers who conduct studies investigating

youth's deviant behaviors and the family, have discovered that the lack of attachment between a parent and a youth is an explanation to why some youth's adopt opposite behaviors (see Ary, Tildesley, Hops & Andrews, 1993; Ashby-Wills & Cleary 1996; Engels, Knibbe, DeVries, Drop & VanBreukelen, 1999; Kalling-Knight, Cross, Giles-Sims & Simpson, 1995; Turner et al., 1993 for reviews).

Thus, a corollary hypothesis is that if the relationship between a parent and a youth is strong, the youth will more likely adopt the same type of behavior as the parent. On the other hand, a youth who is lacking parental guidance will be less likely to imitate their parent's behavior. This in turn, can be categorized as a deviant or opposite behavior because the youth does not feel the necessary attachment toward a significant other. Thus, according to several researchers, (Ary et al., 1993; Ashby-Wills & Cleary 1996; Engels et al., 1999; Kalling-Knight et al., 1995; Ravndal & Valgum, 1994; Turner et al., 1993) a main determinant of whether or not a youth will embrace similar behaviors to those of their parents is based on the relationship the parent and youth cultivate during the youth's pre-adolescence.

In summary, the Deviancy Model discusses adopting a deviant behavior in terms of the lack of attachment between the parent and youth. It also explains that depending on the attachment between the parent and youth; the youth may or may not adopt similar behaviors as his/her parent. Therefore, attachment between the mother and daughter was investigated in Phase 2 of this study.

Parental Influence on Youths' Physical Activity Motivation

"Motivation is important, as it plants the seed (the intentions) that will eventually grow into behavior" (Vallerand, Fortier, & Guay, 1997, p. 1169). Although motivation is

a key concept in the physical activity context, not many studies have examined parental influence on youth's motivation to participate in physical activity (Frederick & Ryan, 1994; Sallis, 1999). Brustad, (1996) and Pelletier, Fortier, Tuson, Brière, and Blais, (1995) report that future research is needed to better understand parental influences that affect a youth's motivation towards physical activity. Also, from an applied perspective, a better understanding of the role of mothers' in their daughters' development could be useful for the mothers' and daughters' in general. Therefore, one of the purposes of this study was to investigate the relationship between mother's and daughter's motivation towards physical activity.

With only a small number of researchers examining the influence of parents with regards to motivation towards physical activity (Gaumont & Fortier, 2000; Nicholls, 1989; Roberts, Treasure, & Hall, 1994; White & Duda, 1993; White, Duda & Hart, 1992; White, 1995) it is difficult to make any predictions regarding the mother-daughter relationship. Therefore, it is necessary to find supplementary studies, which can possibly explain any relationship that may arise. For instance, Duda (1996) found that parents play a significant role in the development of goal-orientation, and specifically, motivational climate. Duda (1996) explains that goal-orientation directly relates to how adolescents will cognitively and affectively respond to and act in situations such as sport, while Ames and Archer, (1988) describe the motivational climate as a view of the climate in a sporting context (i.e., playing field) rather than a task-ego oriented climate. The concepts goal-orientation and specifically motivational climate are based on task and ego oriented climates described by White (1998). She explains that the parent-initiated motivational climate involves two contrasting environments: task-involving and ego-involving. Task-

involving behaviors are similar to self-determined behaviors because the behavior is done for the enjoyment and pleasure of doing the activity, whereas ego-involving behaviors are similar to non-self-determined behaviors because a person does the behavior for reasons outside of themselves. Self-determined motivation is when a person participates in an activity for his/her own internal reasons, while non-self-determined motivation is when a person does an activity for external reasons such as winning. White et al., (1992) found that parents' views about their children's abilities and the importance of enjoying and learning new skills impact the youth's own perceptions about what they think they can accomplish in achievement situations.

Another study by Duda & Hom (1993) examined the relationship between parent and youth self-reported goal-orientation (motivational climate) and found that youth's goal-orientations were significantly related to those of their parents. Specifically, parents who were more task-oriented were more likely to have children who were also task-oriented whereas parents who were more ego-oriented were more likely have children who were ego-oriented. Furthermore, there have been a few studies, which have investigated motivation as an attribute of observational learning. One study in particular by Wild, Enzle, Nix, and Deci (1997) combined two other studies that investigated this notion. The basis for these studies was from the work of Deci and Ryan (1985, 1991). Those researchers posited that in many common dyadic interactions (i.e. parent and youth), perceptions of the other's motivation influence the formation of expectancies that shape the functional significance of events that transpire among dyad members. Wild et al., (1997) replicated two studies, which investigated whether or not a dyad member can influence motivation. This was done in order to gain a better understanding of whether or

not the perception of another's motivation to engage in an activity systematically affects the perceiver's expectations about the quality of interpersonal relations and experiential involvement in the task. "Interpersonal relations are the extent to which the other will support one's autonomy or control one's behavior, while experiential involvement is the extent to which interest and pleasure will occur during activity engagement" (Wild et al., 1997, pg. 838). These in turn, may systematically modify the perceiver's motivation when he or she actually engages in the task.

The studies that Wild et al., (1997) replicated and combined were the work of Cellar and Wade (1988) and Wild et al., (1992). Both of these studies found that those people who engaged in an activity and exhibited enjoyment and persistence influenced another person to become as intrinsically motivated as the perceiver. Specifically, Cellar and Wade (1988) found that when the target person perceived the demonstrator to be exhibiting enjoyment and persistence while doing an activity, it led to the enhancement of intrinsic motivation for the target person. Furthermore, Wild et al., (1992) discovered that participants who perceived a person to be an intrinsically motivated volunteer reported higher enjoyment and higher positive affect while engaging in the same activity. Those participants were also more interested in gaining more knowledge and exhibited greater exploratory activity during their free time, compared to participants who perceived the volunteer to be extrinsically motivated (i.e., being paid). In sum, both of these studies lend support to the idea that parents influence their children to adopt similar motivational behaviors. A theory that thoroughly explains motivational behaviors is Self-Determination Theory.

Self-Determination Theory. One theory that could be used to examine the relationship between mother's and daughter's motivation towards physical activity is Self-Determination Theory (SDT) (Deci & Ryan 1985; 1991). This motivational framework examines a broad range of motivation types to the degree in which they are considered to be self-determined. Motivation is important to take into account because this concept has been found to be strongly linked to physical activity behavior (Fortier, 2000; Frederick & Ryan, 1994; Oman & McAuley, 1993; Pelletier, Fortier, Vallerand & Brière, 2001).

Self-Determination Theory (Deci & Ryan, 1985) originated from the works of deCharms (1968), Deci (1975), Maslow (1943), and White (1959) as a comprehensive synthesis of the understanding and explanation of human behavior. According to SDT, motivation arises from three fundamental psychological needs, namely, the needs for competence, autonomy, and relatedness. Deci and Ryan (1985) explain humanistic environmental interactions based on the drive to fulfill these three needs (Deci & Ryan, 1985). Organismic Integration Theory (OIT, Deci & Ryan, 1985) is a sub-theory of SDT. This theory will be explained in the following sections.

Organismic Integration Theory. Organismic Integration Theory (OIT: Deci & Ryan, 1985) elaborates on the different types of motivation and the consequences related to them. OIT suggests that human development follows a pattern wherein the individual distinguishes between elements of internal and external environments, and is then able to bring such elements together harmoniously with his/her own structures in order to further refine previously existing structures (Deci & Ryan, 1985).

Types of motivation. According to Deci and Ryan's (1985) OIT there are three main types of motivation: amotivation, extrinsic motivation, and intrinsic motivation. These different forms of motivation differ in the degree to which they are self-determined and can be placed on a self-determined continuum (see Figure 1).

Amotivation is found at the lowest level of self-determination. Amotivation is characterized by the lack of intrinsic and extrinsic motivation. In terms of behavior regulation, amotivation refers to circumstances where an individual believes that he/she has no control over his/her actions and the ensuing outcomes of these actions. Amotivated behaviors are the least self-determined because there "is no sense of purpose, no expectation of reward, and no expectation that the present course of events can be changed" (Pelletier et al., 2001, pg. 25). For example, a daughter may come to a point where she is no longer motivated towards physical activity.

Moving along the continuum is the multidimensional graph of extrinsic motivation. Externally motivated individuals participate in activities such as physical activity as a means to an end and not for the activity itself. There are three sub-categories of extrinsic motivation. These are external regulation, introjected regulation, and identified regulation. Organismic Integration Theory posits various types of extrinsic motivation exist, some being self-determined and self-regulatory in nature.

External regulation refers to a behavior that is controlled/regulated by outside sources such as rewards and/or constraints. For example, a daughter may exercise because her mother urges her to do so. A type of external regulation that has been highly discussed in motivation research is self-presentation (Conroy, Motl & Hall 2000). "Image is everything" is a 1990's advertising slogan, which has captured the attention of many

Self-Determination Continuum (Deci & Ryan, 1985, 1991)

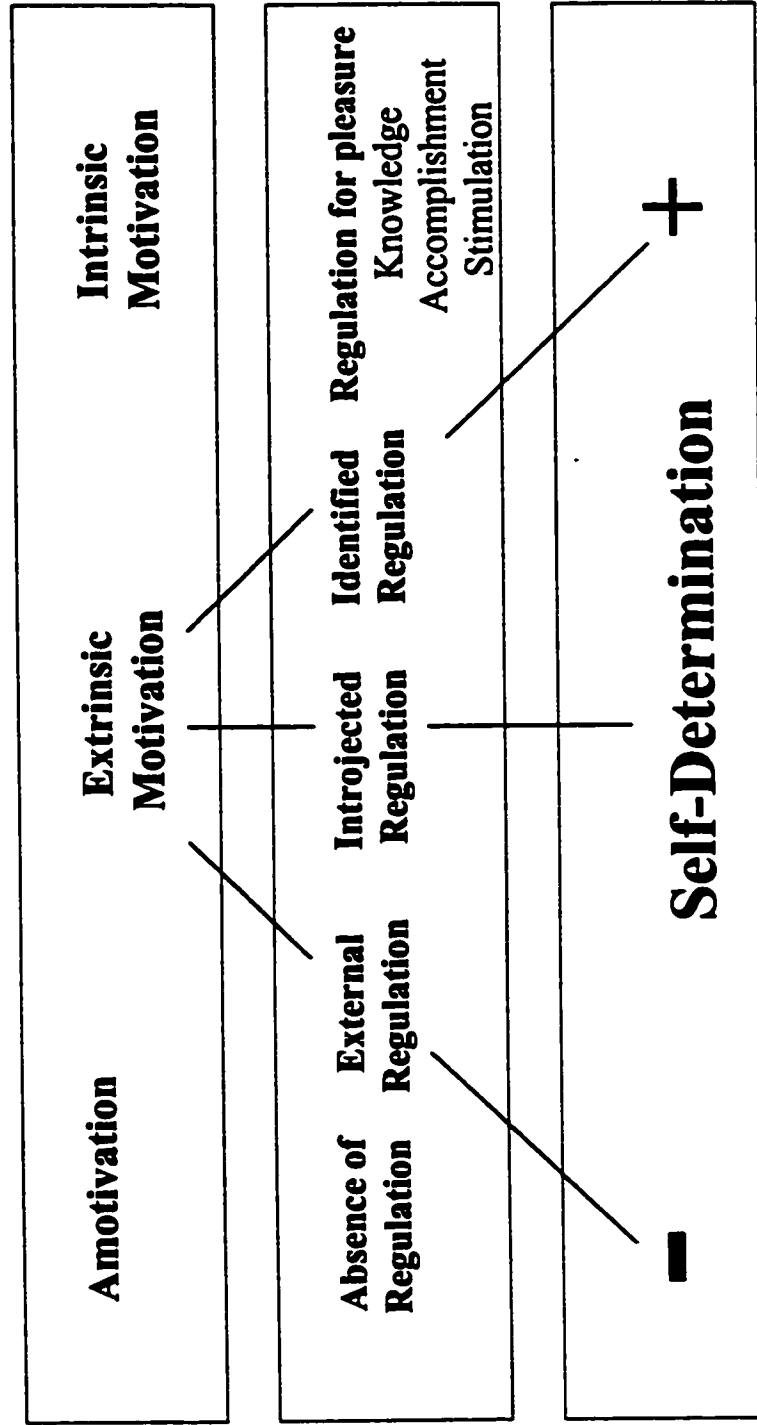


Figure 1.

people in Western culture. This slogan is a noteworthy illustration of self-presentation in everyday life (Conroy, et al., 2000). Self-presentation is a concept that has become increasingly popular in the area of exercise psychology. The reason being is it is an essential and valuable component of interpersonal behavior and also, it is a process, which encompasses all aspects of our lives including physical activity. "Self-presentation is the attempt to control the self-relevant images one projects to others" (Leary & Schlenker, 1980 pg. 155). Self-presentation is a concept that explains the process by which people monitor and control how others perceive them. It entails a selective presentation of oneself towards others that will make the desired impression. "The desire to improve or maintain physical appearance through exercise clearly reflects acquisitive self-presentational motives" (Eklund & Crawford, 1994, p. 71). With people focusing much of their attention on how others perceive them illustrates another form of external regulation.

Some studies have found that females appear to exhibit more self-determined forms of motivation (i.e., intrinsic motivation and identified regulation) towards sports whereas males exhibit less self-determined forms of sport motivation (external regulation and amotivation). Yet, research outside of the traditional sport (i.e., running, swimming, cycling) context has revealed that women who participate in exercise often do so for body-related motives (Davis, Claridge, & Brewer, 1996; McDonald & Thompson, 1992). This in turn would likely promote higher levels of non self-determined motivation, specifically introjected regulation. Thus, there appears to be a contradiction as to whether women involved in exercise display higher levels of self-determined motivation, or whether they would display higher levels of non self-determined forms of motivation

(introjected motivation) as identified by the literature supporting body-related motives of female exercisers.

Introjected regulation is another type of external regulation that represents the first attempt at internalization (first form of self-regulation). Internalization refers to when the individual begins to internalize the formerly external source of motivation, and now reinforces the behavior through internal pressures, such as guilt. In this case, individuals perform certain activities because they would feel anxiety or guilt if they did not perform the activity. In this instance, the activity is not completely chosen freely because a conflict or lack of integration within the self continues to pressure the individual. It has also been argued that individuals who are introjectedly motivated are not self-determined because they are “self-controlling” their behavior (Pelletier, Tuson, & Haddad, 1997). Introjected motivation may possibly be a common type of motivation driving the high frequency exercising mothers and daughters to be physically active, which is a subgroup that is investigated in this research. Reason for this is because of the drastic increase in women joining gyms and participating in physical activity to help improve their bodies. An example of introjected motivation for women is the guilt that is accompanied with the lack of engaging in physical activity.

On the other hand, when an individual is motivated out of identified regulation, he/she performs the behavior out of choice and value the activity as being important (Vallerand et al., 1993). Identified regulation is self-determined because it has been integrated into the self. The individual chooses an activity (e.g. running for better health), however, the motivation to participate in this activity is extrinsic because results of the activity are what drive the individual. Instead of the feeling obligated and pressured to

take part in an activity, the individual feels a sense of direction and purpose (Pelletier et al., 2001). An example of this would be a mother exercising because it makes her feel good.

Lastly, the highest form of motivation is intrinsic motivation. Intrinsic motivation entails the individual taking part in an activity simply for enjoyment or personal interest. There are no outside forces or internal pressures driving the individual to participate in any type of activity. For instance, a daughter plays soccer because she finds it interesting and satisfying. Her participation stems from personal satisfaction or gratification. The type of satisfaction and gratification an individual feels is entirely unique because it comes from inside him/her. Recently, Vallerand et al., (1989, 1992, 1993) developed three types of intrinsic motivation, namely; intrinsic motivation to know, intrinsic motivation towards accomplishments, and intrinsic motivation to experience stimulation (refer to Pelletier et al., 1995 for further elaboration on these three types of intrinsic motivation).

A few studies have concluded that participants who are more self-determined towards physical activity persist more and remain involved in their activity longer compared to less self-determined counterparts. More specifically, Pelletier et al., (2001) found that athletes with more self-determined types of physical activity motivation were more likely to persist in the activity during their careers than athletes reporting less self-determined types of motivation. Furthermore, White (1998) discovered that adolescents with parents who were more task-oriented, which is similar to intrinsic motivation were more likely to be task-oriented than adolescents with parents who were more ego-

oriented (similar to extrinsic motivation). Therefore, one purpose of this study was to investigate the association between mothers and daughter physical activity motivation.

Parental Influence on Youths' Body Image and Dieting

Daughters' body weight and desire to be thinner have been correlated with their mother's reported encouragement of their daughters to control their weight (Thelen & Cormier, 1995). In the 90's, the thought 'one must be thin, to be beautiful' has ruined the lives of millions of women. "Comparisons made with fashion icons have contributed to an estimated 90% of North American women who are dissatisfied with their body shape and size (Probast & Lieberman, 1992, p. 153). The 'fear of fat' craze has dramatically changed numerous women's body image perceptions. This fear has possibly spurred the increase in physical activity among women, which deserves further investigation because little research has been done to investigate the impact of this fear specifically within the mother-daughter relationship (Fox, 1997). There is good evidence that women exercise more for the sake of appearance than for the health-related benefits of physical activity (Garner, Rocket, Olmstead, Johnson, & Coscina, 1985; Mishkind, Rodin, Silberstein & Streigel-Moore, 1986; Silberstein, & Perdue, 1988). "Perfection of the human body for women is now defined by an aesthetic yardstick that is so unrealistic, aberrant, and potentially unhealthy that for the majority, reasonable efforts to achieve this standard are destined to failure" (Fox, 1997, pg. 155). The strive for the perfect body may in fact stem from one particular source, namely the family.

Most children remain in a close-knit family environment for at least 18 years (Statistics Canada, 1994). In that time, there are plenty of opportunities for youths to observe and learn a particular behavior, value, or incentive, as explained by SLT

(Bandura, 1977). As previously explained, SLT discusses that children learn mostly through observation and modeling of significant others (i.e., parents). Research has indicated that physical activity and dieting are two behaviors children adopt based on their parents behaviors (Anderssen & Wold, 1992; Jacob & Eccles, 1992; Kimiecik, Horn & Shurin, 1996; Mota & Queiros, 1996; Smolak et al., 1999; Streigle-Moore & Kearney-Cooke, 1994; Thelen & Cormier, 1995). For instance, Mota and Queiros (1996) explained that parental attitudes toward physical activity have illustrated a responsibility for the encouragement of physical activity in their children. As for body image, Smolak et al., (1999) found “a daughter’s concern about being or getting fat was related to her mother’s complaints about her own weight as well as comments about her daughter’s weight” (p. 270). By way of illustration, if a youth sees their parent(s) constantly dieting and/or making negative comments about their own weight, the youth will most likely learn to do the same.

Body Image. Within the body image research, there are many definitions of body image, but there has been a lack of consensus among researchers. “Research dealing with body image has gone off in all directions” (Fisher 1968) is one explanation as to why there is not one specific definition for body image. However, researchers today continue to use the definitions made many years ago. Gorman (1969) has defined body image as “the concept of ones’ own body, based on present and past perceptions” (p. 10). On the other hand, Gerstmann (1958) stated that, “body image is the ‘body schema’ and is the inner picture or mood which one forms in one’s mind of one’s body...in the course of life, which one carries (about) unwittingly” (p. 507). In addition, Schilder’s (1950) defines body image as “the image of the human body means the picture of our own body

which we form in our mind, that is to say, the way in which the body appears to ourselves” (p. 8). Overall, it can be assumed that researchers consider body image is a perception of how a person sees himself or herself that changes over his/her lifetime. Be that as it may, researchers have not been able to consistently use one specific definition for body image. Fisher (1968) discusses that some researchers have used terms such as body appreciation, body esteem, body concept, body schema, body judgment, and body percept. However, over the years there has been some attempt to integrate these concepts together. For this research the term that will be used is body image from the definition provided by Gorman (1969).

Maternal Influence and Body Image Dissatisfaction. The pressure from society on women to remain thin forces many women to adopt external and negative views of their own bodies. “The cultural context that encourages women to view their bodies as outside observers presumably puts women of all ages at risk for negative body experience” (McKinley, 1999, p. 766). With the increase in negative attitudes towards body image, women are more likely to pass on this belief to their daughters (Smolak et. al., 1999). Body dissatisfaction results from a discrepancy between perceived and ideal body image, which is often perpetuated, and even normalized, by cultural standards of physical attractiveness (Davis, Claridge & Brewer, 1996; Davis & Cowles, 1991). Cash & Henry (1995), on three occasions, polled women over the past three decades and found a remarkable increase of 25% in the 1970’s to 48% in the 1990’s of women negatively evaluating their appearance. More research is needed to identify why body dissatisfaction is growing at a rapid rate. Consequently, it is possible that mothers who have a low body

image will transmit this low perception of their body toward her daughter, who in turn will develop a low body image perception of herself.

Many researchers have discovered that children develop body image at a very young age (see Anderssen & Wold, 1992; Hart, Leary, Rejeski, 1989; Levine, Smolak & Hayden, 1994; Orenstein, 1994; Paxton et al., 1991; Smolak et al., 1999; Spitzack, 1990 for reviews). Hart et al., (1989) found children to become distressed about their body shape and size at an early age (before the age of 10). In addition, Lamb & Jackson (1993) explain, many children learn that bodily features such as size, weight, strength, complexion, or looks are used with often-painful accuracy. Researchers have found that the age of youth worrying about their weight has decreased in the past ten years (Striegel-Moore & Kearney-Cooke, 1994; Thelen & Cormier, 1995). "Girls learn quite early that they are evaluated for how they look, and they come to experience their own bodies in terms of how they look to others, rather than, for example, how they feel or what they can do" (Spitzack, 1990). Therefore, research is needed to understand how this is occurring, specifically within the mother-daughter relationship.

Consistent findings from past studies have illustrated that mothers have a stronger influence on their youth's perceptions of their weight than fathers (Levine et al., 1994; Smolak et al. 1999; Striegel-Moore & Kearney-Cooke, 1994; Thelen & Cormier, 1995). "Mothers are more involved in controlling their children's eating behavior and are more likely to be held responsible for their children's physical appearance" (Striegel-Moore & Kearney-Cooke 1994, pg. 378). Furthermore, McKinley (1999) posits, "the positive relationship between mothers' and daughters' body esteem and surveillance and the

negative relationship between mothers' body shame and daughters' body esteem suggests that mothers' body experience may influence their daughters" (p. 767).

Maternal Influence and Dieting. A tool that mothers have used to help control eating behaviors and/or increase body image is dieting (Pike & Rodin, 1991). Researchers have identified that a preoccupation with dieting can influence the extent- to which women report body dissatisfaction (Fox, 1997). "Estimates indicate that at any one time, nearly 50% of North American women are on a diet" (Fox, 1997, p. 158). Research by Levine et al. (1994) on socio-cultural influences discussed that mothers may model dieting attitudes and behaviors from women in the media. Also, parents who were constantly dieting were likely to influence their youths' to do the same (see Attie & Brooks-Gunn 1989; Levine et al., 1994; Smolak et al., 1999, Striegel-Moore & Kearney-Cooke 1994; Thelen & Cormier 1995 for reviews). Paxton et al., (1991) found that high school girls, but not high school boys who reported having a dieting parent were more likely to be on a diet themselves. Some studies have found that daughters' observing their mothers' constantly dieting are influenced to adopt similar behaviors (see Levine et al., 1994; Pike & Rodin, 1991; Smolak et al., 1999 for reviews).

A study by Wood-Baker et al., (2000) investigated associations between parent and youth attitudes and behaviors related to eating and weight. Modeling and direct criticism were two concepts examined in that research. The findings suggested that those youths' attitudes and behaviors are more strongly related to perceptions of their parents rather than to parents own self-reports meaning direct criticism had a larger impact on the youths' than did modeling. Specifically, direct criticism (e.g. comments about weight) was the strongest pathway of influence, particularly for daughters. Weight loss behavior

was related to perceived criticism among daughters (Wood-Baker et al., 2000). More specifically, it was found that maternal criticism, reported by both the mother and daughter was related to daughters' weight loss behavior. Therefore, it can be inferred from the findings of this study that mothers can influence their daughters' dieting behaviors through comments.

Smolak et al., (1999) also maintained the idea that mothers influence their daughters. In their research, they discussed the popularity of this topic among fellow researchers. They also explain it has recently become evident that parents make more direct contributions to their youth's eating problems and behaviors by creating an environment which emphasizes thinness (especially for females) and expresses dieting or excessive exercise as a way to attain a desired weight. From the youth's perspective, parental comments about weight can highly influence eating disordered behaviors. "A daughter's appearance may affect the messages her parents give her about her body. At the same time, a daughter's experience of her body...is likely to be affected not only by what her family tells her directly, but also by how her mother feels about her own body" (McKinley, 1999, p. 762). In order to discover if this is possible, this study investigated the association between mothers' and daughters' body image perceptions.

The Present Study

The general purpose of this study was to examine the associations between mothers' and daughters' physical activity behavior, physical activity motivation, and body image perceptions. To this end, a two-phase multi-method approach was used. In Phase 1, questionnaires served to quantitatively relate mothers and daughters' physical activity behaviors and their motivation to participate in physical activity. In terms of

physical activity behaviors, research has broadly investigated the relationships between parents and youths', however; one of the aims of Phase 1 was to investigate the associations specifically between mothers' and daughters' self-reported physical activity behaviors and motivation. Few studies have examined the influence of parental variables on youth's motivation and even less have examined the relationship between mothers' and daughters' motivation to participate in physical activity, therefore this was also addressed in Phase 1.

Phase 2 of this study was qualitative (interviews) and consisted of interviewing 5 pairs of mothers and daughters, each being interviewed separately. During Phase 1, mothers' and daughters' were asked if they were interested in participating in another study. Based on the data obtained in Phase 1, there was one mother-daughter pair with a low level of physical activity, three mother-daughter pairs with a moderate level of physical activity and one mother-daughter pair with a high level of physical activity. In total, ten mothers and daughters were asked to participate in the interviews. This was done in order to investigate the body image perceptions of the mothers and daughters. The interviews were used to obtain information regarding each women's current body image perception and their perceptions of the other participant, the attachment levels between the interviewees, the type of motivation each participant had towards physical activity and to reveal any associations between the mother's and daughter's body image perceptions (also see Appendix E for other topics). To further investigate body image perceptions, the interview participants completed a Body Esteem Scale (Mendelson et al., 1997-98).

Hypotheses

The hypotheses for this study are subdivided into two of the categories (physical activity behavior and physical activity motivation) being explored in this research.

Physical Activity Behaviors

Three different hypotheses regarding physical activity behaviors were tested. 1). Mothers who are high frequency exercisers will have daughters who are high frequency exercisers or are non-exercisers. 2). Mothers who are non-exercisers will have daughters who are non-exercisers or who exercise at a high frequency. 3). Mothers who moderately exercise will have daughters who moderately exercise themselves. Support for the third hypothesis stems from previous research on physical activity behaviors, which has shown that daughters of moderately active mothers have similar levels of physical activity (Anderssen & Wold, 1992; Brustad, 1996; Yang et al., 1996). In regards to hypotheses 1 and 2, they are based on SLT (Bandura, 1977) and DM (Jessor & Jessor, 1977) which together they discuss that youths will adopt similar or opposite behaviors to that of their parent(s) based on the level of autonomy the youth develops within the family. Because modeling is one of the most effective ways to convey information about the rules of producing a new behavior, it was predicted (based on SLT) that the daughter's would adopt similar physical activity behaviors as their mothers. Research by Ary et al., 1993; Ashby-Wills and Cleary, 1996; Jessor and Jessor, 1977; and Kalling-Knight et al., 1995 support that youth's who do not establish autonomy within the family context are more likely to adopt deviant or opposite behaviors of their parent(s), which is supported by the Deviancy Model.

Physical Activity Motivation

To examine the association between mothers' and daughters' physical activity motivation, two hypotheses were tested. The first hypothesis was that mothers who were introjectedly motivated would have daughters who were also introjectedly motivated or would be amotivated. Introjection was predicted because it has been found repeatedly that weight control (external reason) is one of the principal reasons for exercising, especially among women (Markland & Hardy, 1993; McDonald & Thompson, 1992; Silberstein, Streigle-Moore, Timko & Rodin, 1988). Amotivation was predicted for the daughters' because adolescence is viewed as a major transition period for development, which involves the search of independence from parents. Therefore, it is possible that the daughters' may feel out of control and no sense of purpose at this time in their lives, consequently, losing their motivation to participate in any type of activity in order to devote more time to discovering themselves. The second hypothesis was that mothers who exhibit self-determined motivation (intrinsic motivation and/or identified regulation) towards physical activity would have daughters who were motivated in the same manner. In support of this hypothesis, Duda & Hom (1993) explained that parents who are more task-oriented are more likely to have children who are also task-oriented (similar to intrinsic motivation) are more likely to have youths' who are also task-oriented. Specifically, they found the youth's goal orientations were significantly related to those of their parents. Therefore, mothers who exhibit self-determined motivation towards physical activity would more likely have daughters who would do the same. The work of White (1992) also supports this prediction. Her findings indicate parents' views about their children's abilities and the importance of enjoying and learning new skills impact

the children's own perceptions about what they think they will accomplish in achievement situations.

Significance of the Study

A study on the associations between mothers and daughter's physical activity behaviors, motivation and body image perceptions is significant for several reasons. First, this study could contribute to the body of knowledge related to the same-sex parental influences on the physical activity behaviors and motivation of adolescents. Parental influences seem to be one of the most salient factors on youth's physical activity behaviors and motivation (Brustad, 1993b; DiLorenzo, Stucky-Ropp, Vander Wal, & Gotham, 1998; Kimiecik et al., 1996). Although some studies have been conducted in this area of research, relatively little is known about the parental influences on physical activity behavior during adolescence. Sallis (1999) asserts that current knowledge concerning the parental influences that affect youth's physical activity behavior is limited and more studies are needed for the understanding of physical activity behavior among adolescents. This study would contribute to this area of research. Therefore, Social Learning Theory and the Deviancy Model were used together in order to better investigate the associations between mothers' and daughters' physical activity behaviors.

Second, there are few studies investigating parental influences onto youth's motivation towards physical activity (Brustad, 1993; Frederick & Ryan, 1995), and even fewer on the associations between mothers' and daughters' physical activity motivation. Only a couple studies to our knowledge have used Self-Determination Theory (Deci & Ryan, 1985; 1991) as a main conceptual approach to investigating the influence of parental physical activity motivation toward their youth's and no studies have used this

within the mother-daughter relationship. This could suggest a new avenue for exploring the influence of parents (mothers) toward their youth's (daughters) physical activity motivation.

Third, there has been a lack of empirical research exploring the mother-daughter relationship and body image perceptions. As a result, this study attempted to gain more understanding within the mother-daughter relationship and body image perceptions through interviews. Finally, there are only a few studies that have used a mixed methodology to investigate the mother-daughter relationship (Mullender, Debbornaire, Hague, Kelly, & Malos, 1998). The use of a mixed methodology has the potential to bring new outlook on the parental, and specifically, the associations between mothers' and daughters' physical activity behavior, motivation and body image perceptions. The combination of approaches allows a variety of topics to come together and be investigated as one single phenomenon. Findings from this study would also be useful to the development of the relationship between mothers and daughters.

CHAPTER III

Presentation of Journal Article

The journal article, *Associations between Mothers' and Daughters' Physical Activity Behavior, Motivation, and Body Image Perceptions: A Multi-Method Study*, presented in this chapter has been prepared for submission to the academic journal of *Psychology of Women Quarterly*.

Running Head: MOTHERS AND DAUGHTERS

Associations between Mothers' and Daughters' Physical Activity Behavior,

Motivation, and Body Image Perceptions: A Multi-Method Study

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Abstract

The purpose of this study was to examine associations between mothers' and daughters' physical activity behavior, motivation, and body image perceptions using a multi-method approach. Phase 1 consisted of administering questionnaires to 166 9th grade female students and their mothers in order to examine the relationships between mothers' and daughters' physical activity behavior and motivation. No significant results were found, however, trends were revealed. Phase 2 consisted of interviewing 5 mother-daughter pairs to investigate the mothers' and daughters' body image perceptions and specifically associations between perceptions. Qualitative findings revealed that mothers and daughters had similar body image perceptions. Findings are discussed in light of past literature, and theoretical and practical implications are addressed.

Adolescence is believed to be an important time for learning health related behavior patterns, including physical activity, which can carry over into adulthood (Anderssen & Wold, 1992; Perry et al., 1990). Youth's physical activity behaviors are important because they affect both their current health status and their predisposition to a variety of potential health risks (Calfas & Taylor, 1994; Sallis & Patrick, 1994). Thus, the challenge in this area is to find out how adolescents can be influenced towards establishing regular physical activity (Mota & Queiros, 1996; Wold & Anderssen, 1990).

Parental influence is a way adolescents learn to establish physical activity as a habit. Indeed, many studies have found parental variables to be strong determinants of youths' adopting physical activity (Kimiecik, Horn & Shurin, 1996; Sallis, Alcaraz, et al., 1992). A certain number of studies have found that same-sex parents influence their same-sex youth more than opposite sex parents (Thelen & Cormier, 1995; Yang et al., 1996). For instance, Yang, Telama & Laakso (1996) found that boys with active fathers were more likely to be active, while for girls their activity was linked to their mothers' activity level. However, only a limited amount of research has specifically investigated same-sex influences with regards to physical activity and even less has specifically examined mother-daughter pairs. Therefore, the overall purpose of this study was to examine associations between mothers' and daughters' physical activity behavior, motivation, and body image perceptions.

In order to investigate mother-daughter influences, Social Learning Theory (SLT) was used. This theory, developed by Bandura (1977), posits that youths' learn mostly through observation and modeling. According to this theory, attitudes and beliefs are observed and/or modeled from significant others and/or role models (e.g. parents). In

support of SLT, many studies have found a positive relationship between parents and youth's physical activity levels (Freedson & Evenson, 1991; Taylor, Baranowski, & Sallis, 1994). Specifically, Moore et al., (1991) found that youths' of active parents were six times as likely to be active than youths' of inactive parents. Several studies of adolescents have also found positive correlations between parental and adolescent physical activity (see Perusse, Tremblay, LeBlanc, & Bouchard, 1989; Zakarian et al., 1994).

Although many studies have supported SLT, a growing number of studies indicate that youths do not always adopt the same physical activity habits as their parents (Biddle & Goudas, 1996; Gaumont & Fortier, 2001; Godin & Shepard, 1986). One model that could explain this is the Deviancy Model (DM: Jessor & Jessor, 1977). Jessor and Jessor (1977) state that youth's can adopt behaviors opposite to that of their parents if they feel distant or alienated from their parent. This theory explains that the closer the relationship a youth has with their parent(s) the higher the likeliness they will adopt or imitate a behavior. Therefore, youth's who feel that they are not close and/or alienated from their parents have the potential to adopt opposite behaviors of their parent(s). This could partially explain why some youth's adopt opposite of behaviors of their parents and some do not. No studies to our knowledge have used DM to help explain why some youths adopt opposite physical activity patterns than their parents. Taken together SLT and DM lead to different predictions. Consequently, one of the purposes of this study was to determine the relationships between mothers' and daughter's physical activity behaviors by using both SLT and the DM.

Two different sets of hypotheses were developed here. According to SLT, the daughter's were predicted to have similar physical activity behaviors as their mothers: 1. Mothers who were high frequency exercisers would have daughters who were also high frequency exercisers 2. Mothers who were moderate exercise would have moderately exercising daughters 3. Mothers who were non-exercisers would have daughters who were non-exercisers. However, according to the DM, some daughters were predicted to have opposite behaviors than their mothers. 1. Mothers in the high frequency exercise group would have daughters who were non-exercisers. 2. Mothers in the non-exercise group would have daughters who were high frequency exercisers.

Although it is important to examine behavior, motivation is also a key as motivation plants the seed (the intentions) that will eventually grow into behavior (Vallerand, Fortier, & Guay, 1997). With regards to motivation, Deci & Ryan's (1985; 1991) Self-Determination Theory was utilized to examine associations between mothers' and daughters' physical activity motivation. This theory multidimensionally differentiates between various types of motivation based on the degree to which they are considered self-determined and self-regulating. Self-determination is important to take into account because this concept has been found to be strongly linked to physical activity behavior (Frederick & Ryan, 1995; Pelletier, Fortier, Vallerand & Brière, 2001). Of particular interest, Cellar and Wade, (1988) and Wild, Enzle, and Hawkins, (1992) found that the attitudes and motivating behaviors of others could predict participants' motivational orientation. Specifically, Wild et al., (1992) found that when piano students observed their piano teachers display intrinsic motivation, the students became intrinsically motivated. Duda and Hom, (1993) and Gaumont and Fortier, (2001) found similar results

in the physical activity context. Specifically, Gaumont and Fortier (2001) discovered perceived parental motivation towards physical activity significantly influenced adolescent's physical activity motivation. However, to date there have not been many studies investigating the association between parent and adolescent physical activity motivation and even less that have examined the link between mothers' and daughters' motivation towards physical activity. Therefore, another purpose of the present study was to explore the association between mothers' and daughters' physical activity motivation.

For the purposes of this study we chose to examine two types of motivation: introjection and self-determined motivation. Introjection was predicted because researchers such as Pike and Rodin (1991), have found the mounting pressures on women in our society to achieve a certain body weight and size may lead some mothers' to participate in physical activity for introjected reasons (i.e. out of guilt, anxiety, shame). Indeed, there is good evidence that women participate in physical activity for the sake of appearance than for the health-related benefits (Garner, Rocket, Olmstead, Johnson, & Coscina, 1985; Silberstein & Perdue, 1988). Self-determined motivation was examined because several researchers (Duda & Hom, 1993; Gaumont & Fortier, 2001) have found parents with self-determined motivation also had youths with self-determined motivation.

Two main hypotheses were formulated here based on the research presented above. The first hypothesis was that if mothers exhibited self-determined motivation (intrinsic motivation and/or identified regulation) towards physical activity their daughters would also be motivated in the same manner. The second hypothesis was if mothers were introjected their daughters would also be introjected.

Another key issue in the area of parental influence and health is body image. A few studies have quantitatively found that mothers influence their daughters in regards to body image perceptions (McKinley, 1999; Smolak, Levine, & Schermer, 1999; Thelen & Cormier, 1995). For instance, McKinley, (1999) investigated women's body perceptions and body esteem and found an increasing number of women adopting negative body perceptions and esteems. Specifically, they found "mothers had lower levels of surveillance (watching the body as an outside observer) and body shame (feeling one is a bad person when appearance does not meet cultural standards) than daughters" (p. 760). In general, these results illustrated that daughter's had higher body image dissatisfaction than their mothers, however the study did not investigate possible sources of the body image dissatisfaction. On the other hand, Smolak et al., (1999) used a survey to examine the relative contributions of mother's and father's direct comments about their child's weight and modeling of weight concerns through their own behaviors on child's body esteem, weight-related concerns and weight loss attempts. Specifically, Smolak et al., (1999) found "direct parental comments, especially by the mother, seemed to be more powerful influences than parental modeling of weight and shape concerns, which lead to girls appearing to be more affected than boys" (p. 263). Both these studies mention the limitations of using quantitative measures; therefore the addition of qualitative investigations in this area would be beneficial. Furthermore, there have not been many studies conducted in this area, therefore, another purpose of this study was to qualitatively explore the associations between mothers' and daughters' body image perceptions.

Therefore, the general purpose of this study was to examine the associations between mothers' and daughters' physical activity behaviors, motivation and body image perceptions. In order to investigate these issues, a two-phase study was conducted. Phase 1 was quantitative and consisted of using questionnaires to quantitatively determine the associations between mothers' and daughter's physical activity behaviors and motivation. Phase 2 was qualitative and consisted of interviewing 5 mother-daughter pairs. Specifically, the interviews attempted to gain more information regarding their body image perceptions and specifically explore the associations between mothers' and daughters' perceptions.

METHOD

Procedures

This study consisted of two phases: the first quantitative and the second qualitative.

Phase 1

Data collection for Phase 1 was a portion of a longitudinal research on physical activity among youths (Fortier, 1998-2000). Four waves of data were collected (2 per year) from nine high schools in order to monitor the physical activity of adolescents over a period of time (2 years) and to specifically examine the determinants thereof. The portion of the study that was used for this research was wave 2 (spring).

After consent for participation was obtained, questionnaires were administered at nine high schools in the Ottawa, Canada area. Questionnaires took approximately 20 minutes to complete. Upon completing the questionnaires, the adolescents were given a packet with a questionnaire for a parent along with an envelope to send the questionnaire

back. In total for this wave, there were 415 parent-adolescent matches and from this number 166 mother-daughter matches were made.

Phase 2

Five mother-daughter pairs were chosen to participate in Phase 2. These pairs were selected from the 166 mother-daughter matches who stated they would be interested in participating in interviews. In order to analyze the interviews depending on the mothers' level of physical activity, numbers and letters identified the mother-daughter pairs (see Table 2).

After contact with all of the participants and verbal consent received, individual interview times were established with each participant. Interviews with the mothers and daughters were conducted separately in a comfortable setting in the homes of the participants in order to ensure truthful/honest answers. In addition, before beginning the interviews, a short questionnaire; *Body Esteem Scale for Adolescents and Adults* (Mendelson, White & Mendelson, 1997-98) was administered in order to obtain a quantitative measure of the participant's body image perceptions. The length of the interviews was approximately half an hour each (i.e. one hour for mother-daughter pair). Following transcription, each interviewee received a copy of her own transcript to read over, as a validity check.

Phase 1 – Quantitative (Questionnaires)

Participants

166 participants (83 daughters and 83 mothers) were involved in this phase. The daughter's ages ranged from 12 to 16 ($M = 14.2$ years SD) while the mother's ages ranged from 35-55 ($M = 43.5$ years SD). They came from a middle-class socio-economic

background and were mainly Caucasian. The participants were categorized into one of three groups based on the mothers' answers they provided on the questionnaire for physical activity behaviors. These three groups were non-exercise, moderate exercise and high-frequency exercise. These groups were created based on percentiles.

Measures

Two questionnaires were developed based on previously validated scales; one for the (mothers) and the other for the (daughters). Both of these questionnaires were categorized into two parts. The first part requested information regarding the participant's physical activity behavior, while the other inquired about their motivation to participate in physical activity.

Mother Questionnaire

Physical Activity Behavior. In order to obtain this measure, mothers were asked to indicate the *frequency* that they did physical activities for 20 minutes or more in the past 4 weeks and the *intensity* (on a scale of 1-3, 1=mild, 2=moderate, 3=vigorous) of these activities. A total score was computed by multiplying the frequency and intensity. The scores for this variable ranged from 0 to 58 (also see Table 1 for ranges).

Insert Table 1 about here

Physical Activity Motivation. To assess the different types of motivation towards physical activity, a slightly adapted version of the validated *Sport Motivation Scale* (SMS; Pelletier et al., 1995), which is based on Self-Determination Theory (SDT; Deci & Ryan, 1985) was utilized. Specifically, the mothers were asked, "In general, when you do physical activity, why do you do it?" 10 items were divided into two general categories of

motivation, which were self-determined motivation (SD) and introjected motivation (IN). Example questions from each category were “because I choose to do it for my own good (MSD),” (4 items-alpha of .94) and “because I feel I have to (MIN)” (6 items-alpha of .97).

Daughter Questionnaire

Physical Activity Behavior. A self-administered one-month recall was used in order to obtain a measure of daughters’ physical activity behavior. Specifically, a modified version of the *Modifiable Activity Questionnaire for Adolescents* (MAQ- A; Aaron, Kriska, Dearwater, Cauley, Metz, & LaPorte, 1995) was utilized. A detailed list of 31 physical activities was given to the daughter’s and they were asked to indicate what type of activity they participated in, how many times in the last month (frequency), how long (in minutes) they spent doing the activity each time (duration) and at what intensity they did the activity (on a scale of one to three, 1=mild, 2=moderate, 3=vigorous). A total physical activity score was computed by multiplying the frequency by the duration and then by the intensity rating for each activity, and summing across all the activities. The scores for this variable ranged from 0 to 7500 (also see Table 1 for ranges).

Physical Activity Motivation. The daughters were also asked questions based on the SMS (Pelletier et al., 1995). The SMS included seven sub-scales, which represent the seven different types of motivation Deci & Ryan (1985) postulate. Specifically, the daughters were asked the following question: “In general, when you do physical activity why do you do it?” In total, there were 28 items used (four items measuring each type of motivation) and the participants were asked to rank on a 7-point Likert scale how strongly they agreed or disagreed with a statement with 1 being strongly disagree to 7

being strongly agree. This scale was used to measure the different types of motivation; these include three intrinsic motivators (IM) [to know (IMK), towards accomplishment (IMA) and to experience stimulation (IMS)], three extrinsic motivators (EM) [external regulation (ER), introjected regulation (IN), and identified regulation (ID)] and also amotivation (AMO). For examples of each type of motivation refer to Pelletier et al. (1995). For the purposes of this study, three scores were created: self-determined motivation (DSD) (16 items-alpha .98), introjected motivation (DIN) (4 items-alpha .82).

Data Analysis

Quantitative data from Phase 1 was analyzed using the SPSS software package. More specifically, 3x3 chi-squares were used to examine associations between mothers' and daughters' physical activity behaviors while, correlations were conducted between the mothers and daughters physical activity motivations.

Phase 2: Qualitative (Interviews)

Participants

For Phase 2, there were a total of five mother-daughter pairs selected from those participants who stated they would be interested in participating in interviews. Thus, five mother-daughter pairs were interviewed totalling 10 interviews. In an attempt to investigate a variety of mother-daughter pairs at a various of physical activity behavior levels, we chose the following (as indicated on Table 2); one mother-daughter pair had lower levels of physical activity and one mother-daughter pair had higher levels of exercise leaving three mother-daughter pairs as moderate level exercisers. For more information regarding these specific pairs see Table 2.

Insert Table 2 about here

Measures

Body Esteem

A questionnaire of 23 questions, The *Body Esteem Scale for Adolescents and Adults* (Mendelson et al., 1997-98) was administered to the mothers and daughters before the interview. This scale assessed participants' attitudes and feelings about their bodies and appearances and was comprised of three factors: BE-Appearance (general feelings about appearance), which was represented by 10 items; BE-Weight (weight satisfaction), represented by 8 items and BE-Attribution (others' evaluations about one's body and appearance) represented by 5 items. A sample question from each section was "I wish I looked like someone else" (BE-Appearance), "I am satisfied with my weight" (BE-Weight) and "other people consider me good looking" (BE-Attribution). The scale was based on a 5-point Likert Scale with 0 being never to 4 being always. A total score was computed for each participant (see Table 2).

Attachment

According to DM, attachment has been found to be a key aspect when investigating parent and youth relationships (Jessor & Jessor, 1977). Therefore, the interviewees were asked to rate their level of attachment/closeness on a scale of 1 to 10; with 1 representing low attachment and 10 representing high attachment.

Interview Guide

The interview guide for Phase 2 consisted of semi-structured questions developed to gather in-depth information regarding body image perceptions, and specifically

associations between mothers and daughter's body image perceptions. The participants were asked questions in two parts regarding how they feel about their bodies (i.e. body image perception), and specific instances that dealt with the development of a particular perception. Part 1 involved questions about themselves such as "what is your ideal body image (size) vs. current image (size)?" and "which parts [of your body] do you like? And why?" whereas Part 2 discussed questions about the other participant such as for the daughters a question was "Has your mother ever commented to you about your...diet, body...to you? If so what? What effect does this have on you?" An example question from Part 2 for the mothers was "Does your daughter illustrate concern about her diet or her body? Are these similar or different than yours?"

Data Analysis

For Phase 2, analysis of the interviews was conducted by using the Nvivo computer program. The first analyses of the interviews revealed many specific aspects within the mother-daughter relationship including: maternal influence, dieting, reasons for physical activity, body image perceptions of self and other participant arose from the interview questions. Analysis of the interviews was found to be quite extensive, therefore the analyses are discussed in terms of specific associations and comparison between the mothers and daughters.

RESULTS

Phase 1: Quantitative Results

Physical Activity Behavior

Three groups were created based on the mothers' answers provided on the questionnaires and specifically the physical activity behavior scale. The responses the mothers' provided were broken-down into percentiles and Godin et al. (1994) discuss

using a percentile command to classify participants into different groups. These groups were non-exercise, moderate exercise and high frequency exercise. The hypothesis for physical activity behavior was that mothers in the non- or high frequency exercise groups would have daughters who had similar or opposite physical activity behaviors as their mothers, whereas mothers in the moderate exercise group would have daughters who also had moderate physical activity behaviors. The results of the 3x3 chi-square analysis (chi-square = 1.96, d.f. = 4, $p < 0.05$) revealed no significant differences between any of the groups. However, some tendencies were revealed. Mainly, the non-exercising mothers had a majority of daughters who were high-frequency exercisers or non-exercisers (see Table 1). Smaller portions of daughters were moderate exercisers. For mothers in the moderate exercising group, most daughters were also moderate exercisers or high frequency exercisers. While, a smaller portion reported being non-exercisers. Finally, for the mothers in the high-frequency exercise group, the percentages were very similar in each group.

It is also interesting to examine Table 2, which presents interviewees' quantitative scores. Specifically, when one looks at the scores from the mothers' and daughters' physical activity behaviors, it appears as though mothers and daughters had similar levels of physical activity. This seems different than what was found above, with the larger sample in Phase 1. However, one mother-daughter pair (2cd) did illustrate a somewhat opposite relationship in regards to physical activity behaviors with the mother reporting a lower level of physical activity and the daughter reporting a moderate level of physical activity (see Table 2). Interestingly, the daughter of this pair reported a low attachment score indicating she feels distant for her mother. This seems to lend some support to DM

showing that the mother-daughter pair had somewhat different levels of physical activity behavior possibly because of their low attachment score.

Physical Activity Motivation

The hypothesis for physical activity motivation was that the mothers and daughters would have similar types of motivation either self-determined or introjected. Table 3 illustrates the pattern of correlations between mothers' and daughters' different types of physical activity motivations. No significant correlations were found for either self-determined motivation or introjected motivation.

However, a trend with the five mother and daughter interviewees introjected motivation did arise (see Table 2). A majority of the interviewee daughters had different introjected scores than their mothers. As Table 2 illustrates, a majority of the daughters had lower introjected scores than their mothers. However, some of those daughters also had lower self-determined scores than their mothers. The daughters may have recognized their mother's introjected motivation and decided to be more motivated by other reasons and/or not want to exercise for the same reasons as their mothers.

Insert Table 3 about here

Phase 2: Qualitative Results

Body Image Perceptions

The purpose of Phase 2 was to qualitatively investigate the associations between the mothers' and daughters' body image perceptions. First when one examines Table 2, it appears that the mothers and daughter had similar body image esteem levels (see Table 2). All but one mother-daughter pair (2cd) [BE = 1.30 (M), 2.91 (D)] were found to have

similar body esteem scores (see Table 2). The mother of this pair made it clear how unhappy she was about her weight, which may be why the mother and daughter had differing body esteem scores. Through the interview, it was discovered the daughter had associated her mother's unhappiness to her being overweight; therefore she took measures to avoid the same unhappiness her mother had encountered all her life.

2d: "I want to keep this [fitness level]. I want to plan my job around keeping in shape, like I want to become a gym teacher, so it demands me to keep in shape all the time...sometimes I wish that I won't end up growing up to diet here and diet there sort like what my mom does...I just want to be happy."

This illustrates that the daughter did acknowledge that her mother's unhappiness was possibly due to her lack of physical activity and weight gain and thus decided to engage in healthy behaviors to avoid being like her mother. Consequently, it was these healthy behaviors that most probably improved her body, and thus her body image.

On the other hand, the mother with the highest level of exercise (3a) stated during her interview that weight has never been an issue for her. This was also evident with her body esteem score (BE = 3.48). Consequently, her daughter may have witnessed her mother's positive body image perception and adopted a similar perspective, which was evident with her body esteem score and during the interview.

3a: "I think I'm probably a little atypical compared to other moms...I mean I've been active all my life...and the example they [daughters] see from us [parents] is an example not many others [adolescents] get...they [other adolescents] don't see a lot of other mothers doing, getting in there and being involved physically..."

3b: "she's [mother] always done lots of physical activity...it definitely shows

discipline. She pushes herself to do this everyday and she never lets back on it so it just shows a good example.”

Furthermore, the daughter’s were asked if their mothers had ever commented on their body and/or diet and if they did, what effect did this have on them? A majority of the daughter’s reported that their mother’s did occasionally make comments about their body and/or diet, and in general they felt their mothers were encouraging them.

2d: “She would comment to me when I got big, but then I changed my activity level and my diet in grade 8 to 10, then I got a lot thinner and my mom was very happy for me...I think her comments encouraged me a bit more.”

3b: “Sometimes I feel pressure from her, but most of the time she’s just trying to encourage me...she doesn’t like me to just lie around on the couch all-day...so sometimes she’ll ask me if I want to go for a run with her.”

In addition, all the mothers explained how their perceptions of their body have changed during the different stages in their lives and it seems that the daughters were either following the same pattern as their mother or undertaking behaviors to avoid looking or being like their mother. In either situation, their mothers in one way or another had influenced the daughters.

1a: “Most definitely [daughter is influenced]...she watches me very closely...we are very much alike...her concerns [about body, exercise and diet] are no different than when I grew up...but she continues to think we are not alike”

2d: “No, I think her behaviors influence me to do the exact opposite...It sounds like the worst thing to say, but it [mothers lack of physical activity] encourages me to workout more I think because I know we are related and I know that our

genes are very much alike, so it just encourages me not to do that [stop exercising and over-eating]”

The interviewees were asked if they felt they had similar or different body image perceptions compared to the other interviewee. Generally, it was found that the interviewees had similar perceptions and attitudes, which correspond with the results obtained with the body esteem scale.

1a: “I would rate low to medium...we are very much alike...her concerns are no different than when I grew up...”

1b: “I would rate myself in between because I could be better and I could be a lot worse.”

3c “Eight, I am pretty happy for my age.”

3d “An eight, I’m fine with the way I look.”

DISCUSSION

The primary purpose of this multi-method study was to examine the associations between mothers’ and daughters’ physical activity behavior, motivation and body image perceptions. Social Learning Theory (Bandura, 1977) and the Deviancy Model (Jessor & Jessor, 1977) were used to help investigate the relationships between mothers and daughters physical activity behaviors. No significant results were revealed in Phase 1. These results are similar to the findings in a recent study conducted by Sallis et al. (1999) who also found no significant relationships between parents’ and adolescents’ physical activity behaviors. In addition, Sallis & Owen (1999) have recently mentioned that more and more studies show no associations between parents’ and youths’ physical activity levels.

However, the following trend was found: mothers in the non-exerciser group were found to have a majority of their daughters report high frequency exercise. This seems to indicate that daughters who perceive their mother’s as low exercisers adopt somewhat

opposite behaviors. This finding, although not significant, is in line with DM, which predicts that youths can adopt opposite behaviors than their parents. In addition, and in support of DM, the findings from the attachment levels between the mothers and daughters from Phase 2 supports a link between them having similar physical activity behaviors and having high attachment scores. As discussed by DM, a bond or attachment is necessary between the perceiver and the observer if the observer is going to attempt to adopt a similar behavior. Interestingly, the daughters in Phase 2, were found to have similar physical activity behaviors as their mothers and also reported high attachment scores. However, one mother-daughter pair illustrated somewhat different physical activity behavior scores with the mother reporting a lower score and her daughter reporting more of a moderate score. The attachment level for this pair was not high. This seems to lend some support to DM showing that the mother-daughter pair had somewhat different levels of physical activity behavior possibly because of their low attachment.

In addition it was found, although the results were not significant, that non-exercising mothers also had a large percentage of their daughters that were also non-exercising, and that moderate exercising mothers' had mostly moderate exercising daughters'. This is in line with past research, which indicated that daughters develop similar physical activity behaviors as their mothers (Colley, Ellington & Elliot, 1992; Sallis, Patterson, Buono et al., 1988; Yang et al., 1994). These findings also seem to support SLT's predictions that youths adopt similar physical activity behaviors than their parents. However, it should be noted that none of these results were significant.

Therefore, with regards to the theoretical implication of these results, it appears as though there is not much significant support for the SLT and DM theories. However, the trends

from Phase 1 and 2 physical activity behaviors, somewhat support both theories. This seems to indicate that the maternal modeling effect is not as influential as previously suggested. It is suggested that further research on the mother-daughter relationship using these theories be completed at different stages in the daughter's life and also with a greater sample size and distinct exercise groups. As explained by Wood-Baker et al., (2000) "parental influence most likely varies at different stages of development" (p. 381). Future research should also explore other possible parental/maternal influences such as encouragement and/or other socializing agents such as peers. In addition, more research should examine attachment levels as a mediating variable in this phenomenon.

With regards to the motivation hypotheses, results from Phase 1 did not support the predictions of self-determined mothers having self-determined daughters and mothers with introjected motivation having daughters who were also introjected. Indeed, none of the correlations were found to be significant. These findings are not in line with past research that has shown that the motivation of social agents towards an activity has an impact on the motivation of individuals towards the same activity (Cellar & Wade, 1988; Wild et al., 1992, 1997). These findings are also not consistent with studies in the context of physical activity that found that parents and their youths seem to have similar motivational profiles (Duda & Hom, 1993; Gaumont & Fortier, 2001). Perhaps the phenomenon is more complex than previously thought. What would seem important to explore is why some parent-youth pairs adopt similar motivational profiles, whereas others adopt opposite patterns. Again perhaps attachment or some other mediating variable is at play.

Furthermore, Self-Determination Theory provided a motivational means of explaining different qualitative aspects of human functioning and provided a basis for understanding physical activity motivation between mothers' and daughters'. However, results of this study challenge the prediction of mothers specifically influencing their daughters to adopt a similar type of motivation during adolescence.

With regards to body image perceptions, the body esteem scores revealed a similar relationship between mothers' and daughters' body images. This was also supported throughout the interviews with the mothers and daughters reporting similar body image perceptions. This is in line with past research, which has indicated that daughters' body image perceptions are observed from their mothers (McKinley, 1999; Smolak et al., 1999). Although, this was one of the first studies to investigate the issue of body image perceptions between mothers and daughters, more research using a multi-method approach is needed to better understand the associations between this dyad. For instance, a longitudinal study (using questionnaires and interviews) following mothers' and daughters' throughout different developmental stages in order to identify many of the possible influences, which may affect women in the development of their body image perceptions could be conducted. Furthermore, there has been a lack of empirical research investigating the mother-daughter relationship. But, with the use of a qualitative approach (interviews) to body image perceptions, this study provided some empirical research to support body image research.

This study contributed to a better understanding of the mother-daughter relationship and specifically the associations between mothers' and daughters' physical activity behaviors, motivations and body image perceptions. Based on the results of both

quantitative and qualitative analyses, the use of a multi-method strategy for data collection and analysis proved to be useful in providing more thorough, in-depth insights into understanding the complexities of the mother-daughter relationship. The results of this study may provide increased awareness and heightened sensitivity into recognizing the association between mothers' and daughters' in regards to the issues examined in this study.

This study shed some light on the understanding of maternal influence on physical activity behaviors, motivation and body image perceptions. No studies to our knowledge have used SLT and DM to examine the associations between mothers' and daughter's physical activity behaviors. Consequently, this study attempted to add a new dimension to the area of maternal influence on physical activity behaviors. Also, there have been few studies investigating parental influences onto youth's motivation towards physical activity, and even fewer on the mothers' influence of her daughters' physical activity motivation. Thus, this study attempted to better understand mothers' influence on her daughters' physical activity motivation. Furthermore, there has been a lack of empirical research exploring the mother-daughter relationship and body image; as a result this study empirically examined the mother-daughter relationship and body image.

In closing, while the findings of a study pertaining to the association between mothers' and daughters' are insightful and helpful in understanding the phenomenon, such results should be implemented with caution. The mother-daughter relationship is a complex phenomenon, which needs further investigation. Therefore, our results reflect associations specifically during early adolescence. For the purposes of this research, three categories of mothers and daughters were made for Phase 1, despite the drawbacks in the

classification method (percentiles) used in this study. Future studies, perhaps using more selective sampling techniques, may provide the opportunity to assess a more representative sample of non-, moderate and high frequency exercising mothers specifically using quantitative and qualitative methods. Also, more research is needed to determine whether interventions should focus on adolescent's perceptions, parent attitudes and behaviors or both. Consequently, the reader is cautioned when applying these results to the practical study of the mother-daughter relationship.

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Table 1**Physical Activity Behavior Scores for Participants in Non-, Moderate and High Frequency Exercise Groups**

Mothers (n = 83)			Daughters (n = 83)			
	DNE		DME		DHF	
	Number	Percent	Number	Percent	Number	Percent
MNE	18	34.0%	14	26.4%	21	39.6%
MME	19	33.3%	21	36.8%	17	29.8%
MHF	18	32.1%	20	35.7%	18	32.1%

Note: Percentages represent number of daughters in each group. N = 166 mothers and daughters. MNE = mother's non-exercise group (Range 0-15). DNE = daughter's non-exercise group (Range 0-1599). MME = mother's moderate exercise group (Range 16-35). DME = daughter's moderate exercise group (Range 1600-5099). MHF = mother's high frequency group (Range 36-58). DHF = daughter's high frequency group (Range 5100-7500).

Table 2**Overall quantitative results of interviewees' physical activity behavior, motivation, and body esteem scores**

	ⁱ Physical Activity Behavior	ⁱⁱ Attachment	ⁱⁱⁱ Self-Determined Motivation	^{iv} Introjected Motivation	^v Body Esteem
1a	15.00	8	5.00	6.50	2.30
1b	160.00	9.9	2.13	2.50	2.50
2a	--	9	--	--	2.00
2b	560.00	8	5.50	4.50	2.60
2c	16.00	8	5.00	5.50	1.30
2d	3275.00	6	6.21	4.25	2.91
2e	34.00	7	6.00	6.00	3.04
2f	2290.00	6	4.04	2.00	3.30
3a	58.00	8	6.50	1.00	3.48
3b	7490.00	8	5.42	7.00	2.57

Note: Low level exercisers = 1, Moderate level exercisers = 2 and High level exercisers = 3; a, c and e represent the mothers; b, d and f represent the daughters. ⁱ Range 0 to 60 for mothers; 0 to 7500.00 for daughters based on percentiles. ⁱⁱ Attachment rating 1-10. ⁱⁱⁱ ^{iv} Range 1 to 7 for physical activity motivation. ^v Range 0 to 4 for body esteem with 4 being high and 0 being low body esteem. Dashes (--) indicate no score was available from this interviewee.

Table 3**Correlations of Mother-Daughter Motivation**

	Daughters (n = 83)	
	Self-Determined Motivation	Introjected Motivation
Mothers (n = 83)		
Self-Determined Motivation	0.083	0.076
<u>Introjected Motivation</u>	<u>0.020</u>	<u>0.016</u>

Note: n = 166 mothers and daughters.

*p < .05. **p < .01. ***p < .001.

CHAPTER IV

Supplementary Results

Additional Themes

This chapter contains four additional themes that arose within each of the three groups.

Maternal Influence on Physical Activity Behavior, Diet and Body Image Perceptions

The issue of maternal influence in regards to physical activity behavior was addressed to each of the interviewees. The mothers were asked if they felt they influenced their daughters in respect to physical activity behavior, while the daughters were asked to what extent did they personally feel that their mother has influenced them in regards to the same issue. Overall, the mothers stated that they do believe they have influenced their daughters in many areas including physical activity behavior.

3a: “You know they [children] see how active her father and I are and I know it [physical activity] must have some effect...you know things we choose to do in our family time is always active...she has always been surrounded by physically active people including myself.”

On the other hand, the daughters stated that their mothers have not influenced them to adopt similar behaviors.

2d: “No, I think her behaviors influence me to do the exact opposite...It sounds like the worst thing in the world to say, but it [mothers lack of physical activity] encourages me to workout more I think because I know we are related and I know that our genes are very much alike, so it just encourages me not to do that [stop exercising and over-eating].”

The discrepancy between the mothers and daughters beliefs in regards to maternal influence could be due to a variety of reasons including the daughter's beginning adolescence, which can lead to the issue of attachment between them.

As discussed in Chapter 3, the mothers believed that the maternal influence they have had on their daughters was significant, whereas the daughters felt that they have not been highly influenced by their mothers in regards to physical activity. This was also the case with regards to the daughter's diet and body image perceptions.

2c: "we are similar, she doesn't think she is, she never thought I was 13 once...I just notice things that she does that I used to do...the exercise and the same thing with foods, when she diets it is the same as me."

3d: "No, I don't think so...I don't think she influences me. I'd say my dad does more [influence]..."

Furthermore, analysis of maternal influence within each of the groups revealed the same conclusion of the mother believing they have had a significant impact in their daughter lives and the daughters stating they did not.

The daughter in the low exercise group remarked that she felt she was more influenced by her father in regards to physical activity behaviors.

1b: "He's a total health nut. He's into the weight lifting and fitness thing, he has all the books on fitness on how to get in shape, so I trust more my dad than my mom because my mom will go somewhere and just repeat exactly what that person was saying and she kind of babbles and exaggerates everything."

At the time of the interview, her mother reported increasing her level of physical activity. In fact, her mother went from not exercising at all to walking 5 times a week.

However, the daughter stated that due to her mothers lack of physical activity for the past few years she felt that anything her mother said was not validated because her mother did not personally follow up on any of the suggestions and/or comments she gave regarding her daughter's physical activity, diet and body.

1b: "She's uncomfortable about hers [body]...it kind of makes her a hypocrite saying I need to get out more, saying I should be getting more exercise and she's not..."

Furthermore, when her mother did discuss physical activity behaviors, diet and body image with her, the daughter learned to 'tune out' her mother.

1b: "I just tune her out on those parts [physical activity, diet, body]...because sometimes she just blabbers...she likes to come up with statistics to make me feel guilty for not doing more exercise or eating right so I just tune her out."

With this daughter "tuning" out her mother, the level of maternal influence between this pair is not high. Consequently, this daughter stands by the notion that her mother does not influence her in any aspect of her life specifically physical activity and body image.

In contrast, the low exercising mother believes she influences her daughter in many aspects including her body image and diet.

1a: "Most definitely [daughter is influenced]...she watches me very closely...we are very much alike...her concerns [about body, exercise and diet] are no different than when I grew up..."

Therefore, it is suggested that parents who make comments about their youth's behavior, diet or body can deter their child's behavior due to the lack of modeling the behavior.

This low exercising mother-daughter pair help illustrate that some daughters can observe their mothers behaviors and react by adopting a behavior that is not necessarily consistent with her mothers, but may be similar meaning that the daughter may be amotivated (no motivation). Furthermore, if the issue of maternal influence was addressed to the

daughter before she began adolescence her response may have been different, suggesting that she may have been influenced by her mother.

The issue of maternal influence for the daughters with a moderate level of exercise is similar to that of the daughter in a lower level of exercise. Two of the daughters stated that they believed their mother's did not influence them in regards to physical activity. Particularly, one daughter stated that as she has observed her mothers weight and physical activity fluctuate so much that she promised herself that that would not happen to her, which illustrates that her mother did in fact influence her.

2d: "Sometimes I think 'well, I never want to end up like that' I always want to be in shape and I always want to do this [exercise and eat healthy]...After having 3 girls and running around after us...I guess it kind of takes its toll."

Consequently, this daughter adopted physical activity and dieting behaviors that were different than her mothers. For example, she reported exercising 7 days a week for more than an hour at a time. However, this comment illustrates that the mother has influenced her daughter to adopt an opposite behavior, which is partially consistent with the Deviancy Model. Interestingly, both daughters reported only participating in physical activity at this intensity for a short period of time, specifically since entering high school. Through the interview, it became more apparent why the daughter's were suddenly adopting higher levels of physical activity. Social pressures from peers to be thin were one reason; along with that they both knew their mothers were active and thinner when they were younger. As one daughter stated:

2d: "I know like 10 years ago she was in perfect shape"

During the interviews, both mothers in the moderate group discussed being physically active and watching their weight throughout their lives especially in their adolescence. However, when the mother's began having and raising children, their levels of physical activity dropped while their weight increased. Both daughters reported noticing the weight gain and lack of physical activity in their mothers, as they grew older. Consequently, the daughters made the association of the lack of physical activity caused weight gain therefore the higher levels of physical activity were adopted by both daughters.

2d: "I know she's not satisfied with herself, I can just tell from the way she feels, the way she talks, her body language, I feel sorry for her and I want to help...she used to play softball and stuff, so that kept her in shape, but now she's gotten more and more out of it."

Furthermore, as discussed in the interviews both daughters in the moderate exercise group became aware of their predisposition to weight gain from observing their mothers behaviors. As one mother explained about her daughter:

2c: "She's had a little weight problem growing up too, but she's lost it all. And, she did that all on her own, she decided that was it...she was drinking water and exercising and doing probably a lot of the peer things at school too."

This particular daughter decided that she was not going to follow her mothers behaviors, so she adopted a higher level of physical activity in order to maintain and/or lose weight. As for the other daughter, the mother explained that her daughter has become more health conscious in the past couple of years.

2a: “My daughter will like ice cream, but go for yogurt...frozen yogurt rather than ice cream...she’s more health conscious...she eats very sensibly and is very conscious of what she’s eating...probably a couple of years ago she asked me to stop buying certain foods and to take the candy jar away.”

With this daughter’s recent concern with food and diet it suggests that she understands in order to remain thin, she must control what goes into her body. Therefore, with both daughters’ concerns about their weight it can be assumed that they realized their predisposition to weight gain and adopted behaviors in which they are able overcome the possibility of becoming like their mothers. Consequently, it can be inferred that for the interviewees in the moderate exercise group, body image influences their levels of physical activity.

What’s more is one of the moderate exercising mothers explained that she has been battling weight all of her life and knows that her family has been affected by this battle, especially her daughter, because of her mother’s attitudes, comments and behaviors towards her own weight has been a constant issue in the household. She went on to explain that she does not want her children to follow in her footsteps because she does not want them to go through the things she did.

2c: “I tend to not want my kids to end up like me, in the sense that I don’t want them to feel like I’m big...I don’t want them to get big either, but my daughter seems to have taken to it [physical activity]...”

Consequently, the issue of weight gain is a primary issue for this mother-daughter pair, therefore explaining why this particular daughter took on the responsibility to learn more about eating healthy and exercise.

2d: "I know she watches what she eats, but then the next minute she'll go off and just eat whatever she wants...I can't do that if I want to be a better soccer player...my coach helped me out a lot with what I should eat, she's very strict with it, so it helps a lot...or sometimes I look it [information] up myself."

Overall, the daughter's in the non-exercising and moderate exercising group have attempted to adopt a higher level of physical activity compared to their mothers, which is consistent with the Deviancy Model and that their motives are mostly to not become like their mothers (i.e. low body image). This also supports the trend from Phase I where non-exercising mothers had more high frequency exercising daughters.

On the other hand, eating healthy and plenty of exercise are two behaviors that one of the high frequency exercising mothers emphasizes to her daughter.

3a: "I think she knows from the years gone by, what I think is good for her to eat because when I see the lunches rolling out of the house it's a good thing, so obviously the works been done...You know they see that [parents physical activity] and it must have some effect...things we choose do in our family time is always active."

As the daughter explains her mother has influenced her to be highly active and maintain a balanced diet.

3b: "Well, it [mothers behavior] definitely shows discipline. She pushes herself to do this [exercise and eat well] everyday and she never lets back on it so it just shows a good example for discipline and motivation. Yeah, I suppose she influences me to be active...because I know what she's doing is helping her in the long run...in most cases I would do the same [behaviors]..."

Unfortunately, (as discussed in Chapter 3), only one of the mother-daughter pairs in the high frequency exercise group are high frequency exercisers. However, the findings from this high frequency mother-daughter pair are not consistent with the results from the low and moderate exercising mother-daughter pairs, which discusses that the mother's in the low and moderate groups believed they had influenced their daughter's while their daughter's felt their mother did not influence her in any aspect of her life. But, that is not to say that the mother has not influenced her daughter earlier in her life. However, with only one pair of high level exercisers, some conclusions can be made regarding mothers and daughters with the high frequency profile.

While interviewing the mother with the highest level of physical activity (3a) it became apparent rather quickly that this mother has been a high frequency exerciser all of her life. Her life has revolved around physical activity. While growing up she realized many different benefits to physical activity such as it clears her mind and it lets her "escape" for a little while. Consequently, she has kept it apart of her life. Even while having children she was physically active. When the children were young, she took them on bike rides and hikes. In turn, while the daughter grew up she learned to incorporate physical activity into her life just as her mother did and continues to do. From birth, the daughter was exposed to high amounts of physical activity because that is what her parents enjoyed doing, therefore, the daughter did not learn any other way.

3a: "We put them [children] in our little bike-buggy really early and we would bike them down to the beach, play around at the beach and we'd swim and then we would come back kind of thing...we've always provided lots of

equipment...the equipment has always been there and even if there's the slightest interest."

Moore et al.'s (1991) finding of children with physical active parents are six times more likely to be physical active than children of inactive parents is supported with this family. Throughout the daughter's life her parents have been physically active, had well-balanced diets and have emphasized participating in activities because of the enjoyment. Consequently, the daughter has adopted a similar level of physical activity, diet and body image perception as her mother possibly because this pair does not participate in physical activity at an extreme level, which also lends support for the Social Learning Theory. It is possible that if the mother participated in physical activity at an extreme level, the daughter would react and do the opposite. Be that as it may, what makes this mother-daughter pair different from the others? It could simply lie within another realm of the mother-daughter relationship being the encouragement, which the daughter receives during the different stages in her life, or it could be a combination of many different aspects within the relationship.

Encouragement

Through the interviews, encouragement was found to be a key aspect as to whether or not the daughter participated in physical activity. It was uncovered during the interviews that the higher the encouragement level a mother gave her daughter to participate in physical activity, the higher the likeness the daughter participated in physical activity. The issue of encouragement was asked to each of the interviewees.

All of the mothers explained different types of encouragement they gave their daughters throughout their lives. For instance, one mother (high frequency) discusses how she and her husband encouraged their daughter:

3a: “we supported her by helping organize meets [gymnastics] and driving to various cities to compete, being a board member and doing bingos to raise money”

While the other high frequency mother explains her encouragement by being at all her daughter’s games and the non-exercising mother does so by supporting her daughter to participate in physical activity.

3c: “I go to all of her games because I only work part-time, so I am able to go to all the games to support and encourage her”

2c: “both her father and I encouraged, not pushed...encouraged her to be physically active. I’ve always encouraged her to be as active as she can. I think it’s one of the most important things.”

There were no noteworthy differences in regards to the amount of encouragement the mothers gave their daughters since the mothers in all the groups discussed providing the money to play, driving their daughter to practice and attending games. Encouragement from a parent is a strong tool to help a young person achieve, participate and/or enjoy any type of activity. When a person is supported or encouraged to complete any task, the task seems to become easier and within reach. As the daughter in the non-exercise group explains:

1b: “If I do decide to do something [activity] she encourages me a lot...like my soccer...she encouraged me to join a soccer team at school and then one outside of school, you know indoor soccer, kind of prodded me into that direction...she comes to all my games, drives me and she’s the only one that screams...but I’m glad she’s there.”

Furthermore, encouragement is important when parent(s) do not have the ability to model certain behaviors such as physical activity. As a mother in the moderate exercise group explains, she sustained an injury a few years ago, which has limited her level of physical activity. This mother knows how important physical activity is to maintain a healthy lifestyle, therefore she has relied on her encouragement to help her daughter learn the importance of being active and eating healthy. She explains behaviors are not necessarily learned from modelling, but also from the encouragement to complete the behavior.

2a: "I don't think we are that active, [her dad and myself]...so I don't think it has to do as much with the modelling as it does with the encouragement. So, a parent in my mind can be quite a bit less active as the child and at the same time be encouraging to go to the gym (i.e. take them to the gym, buy them the membership at the gym, take them to soccer, put the money into whatever the sport is and the child may grow through that wanting to do the exercise on a regular basis despite the fact the parent isn't active."

Therefore, further investigation into the levels and types of encouragement between a mother and daughter may help shed more light into this complex phenomenon.

Changes in Relationship Since Entering High School

Adolescence is a time of change. All the interviewees (mothers and daughters) were asked if the relationship between the mother and daughter has changed since the daughter began high school. Not surprisingly, a majority of the mothers felt that their daughters' have changed. There seemed to be a consensus among all the mothers that the daughters were all becoming more distant.

3a: "I can sense that she's ready for a little distance from mother I think, the old rolling of the eyes and you ask the wrong question and she thinks that we're checking up on her...we'll get the brush off, but that's okay! It's just a part of growing up. That's what she wants to do..."

3c: "It's changed in the last year or so since she started high school. She's starting to become very independent and you know wants to do everything her way and whatever she wants whenever she wants it. I know that it's natural and she has to do that as a part of growing up, so right now I think we are starting to go away from each other, but I know we'll come back."

2a: "I think in some ways we got closer and in other ways we've probably drawn a bit apart, but I think that's normal for a mother and a daughter. I did it with my own mother..."

These mothers know and realize that their daughters are growing up and as a result of this there is a small break in the closeness they have in their relationship, which may be reflected in the daughters reporting a lower closeness rating than the mothers (as previously discussed in Chapter 3). There is a great bond between a mother and a daughter especially before adolescence which some of the mothers discuss. As one mother points out, she went through this with her own mother, therefore, she realizes that this is a natural occurrence and not to worry about the distance between them at this point in time.

From the daughter's perspective, most acknowledged that the relationship with their mother has changed since beginning high school. As the daughter in the non-exercise group discusses her friends are currently a primary source of information.

1b: “Now I talk more to my friends, I am more open with my friends than I am with her [mother]. I can’t tell my mother THAT! Sort of thing comes up...part of it is her understanding how high school is now...it’s been a while since she was in high school...”

For a daughter in the moderate exercise group, she has realized that she is growing farther away from her mother, but that is a part of adolescence for girls.

2d: “I think we were much closer when I was younger...probably in the past year and half, 2 years I’ve grown farther away from her [mother] than I would like, but I don’t know I find...it’s a part of the process.”

As a result of the change in relationship since the daughters’ entered high school, the relationship between the mother and daughter can be difficult to measure. Measuring the impact a mother has on her daughter can be challenging because they are currently distancing themselves from each other in order to allow for the young daughter to grow and blossom into a woman. This could be another explanation to why there were not significant results found in regards to the physical activity behaviors and motivation.

Comparison with Others

When entering adolescence, a youth begins to undertake new behaviors such as comparing themselves to others in order to fit in or to help themselves establish a sense of self. Therefore, a question regarding whether or not the daughter’s compared themselves with others was asked to the mothers and daughters. It was unanimously found that the daughter’s do in fact compare themselves with others and as one mother put it “who doesn’t?”

To this end, the fact that the daughter begins to adopt her peers attitudes and beliefs than before her parents' specifically her mother's lends support to why she also begins compare herself with others. The daughters in this study gave different reasons for comparing themselves such as a daughter in the high frequency exercise group explains:

3b: "I know everyone always says not to compare yourself with others, but if I was trying out for a team or something and there were lots of people trying out, I would compare myself to another girl to see whether I would make the team or if she would."

While the daughter in the non exercise group stated:

1b: "I compare myself with my friends sometimes...if I'm trying to make them cheer up or something I'll compare myself and I'll say 'hey, you've got this better than I do an blah, blah, blah...' and then I get depressed and then I start comparing people and then I'm like wait a minute that's not what is supposed to happen!"

No matter the reason for comparison, everyone seems to do it even the mothers.

2c: "I think we all do it [compare]. I mean it's a subconscious thing because I know I do it..."

As this mother explains everyone seems to compare themselves to others, it becomes apparent that comparisons are constantly made in order to help people reassure themselves that they are fitting in the "norm". Adolescence is a time to compare notes on what a person has learned thus far. Everyone develops at different speeds; therefore comparing ourselves against each other helps us develop guidelines as to what is acceptable and what is not. However, the effects of this comparison can be positive

and/or negative. It may depend on how seriously a person compares themselves such as young girls looking in beauty magazines and comparing themselves to the skinny models. This may be a source of how young girls begin to develop negative beliefs of themselves and attempt to achieve a body image that may force them to become anorexic or bulimic. On the other hand, one daughter in the moderate exercise group discusses the fact that she has stopped comparing herself to others, which in turn has helped her gain more self-confidence.

2d: "When I was in grade nine I used to [compare], but now I'm just like... 'if you don't like what you are looking at, just don't look at me'... basically I'm pretty easy going now... between grade nine and ten... I became really self-confident... I just realized that if I stop and compare myself I wouldn't make myself feel a whole lot better, so I just stopped and now I'm really happy with the way I am."

In addition, a mother in the high frequency exercise group and the non-exercise group agree that a comparison with others helps people gain self-confidence or self-esteem.

3a: "I think it gives you a certain level of self-confidence, you don't have to question yourself. You know there are these features of you that you're proud of and the other people are going to recognize them, in that case there's some self-assurance."

1a: "It [comparison] has a big effect on self-esteem."

Comparisons with others may also affect people in a sporting context. A daughter in the high frequency exercise group explains that comparing herself to others in an athletic context helped her realize her potential as an athlete.

3b: “In some ways you can always aspire to becoming better than your opponent...you can pick up on some of their good points and learn from that to help you become a better athlete.”

As illustrated, there may be many effects of comparing oneself to others. It may depend on the type of influences a person encounters on a daily basis and/or how people view themselves. However, this is beyond the scope of this research, therefore, it is suggested that comparisons to others be researched in future studies.

Summary of the Interview Themes

Findings from the interviews reported in the supplementary results chapter of this thesis were presented as additional themes within each of the three groups. It was decided initially to present these results in-group format, as the small sample size for the qualitative portion of this study made it difficult to generalize the findings amongst interviewees. The complete groups, however, were too extensive to discuss in the journal article, and were consequently placed in this document as a supplementary results chapter. A cross-comparison of the groups revealed that despite the limitations of this small sample, both similarities and differences in physical activity behavior, motivation, and body image perceptions were expressed across the participants.

Specifically, in terms of maternal influence for the non-exercise group, the daughter felt that her mother was not a key aspect of her life. The daughter stated that her father influenced her more in terms of physical activity. However, she did report a high level of attachment and encouragement between her and her mother, but contends that her mother does not influence her. For the interviewees in the moderate exercise group, the maternal influence between the mother's and daughters was found to be linked to each

other. The daughter's expressed in many ways how they have been influenced by their mothers and the encouragement that they provided helped them continue to participate in physical activity. Both mother-daughter pairs remarked on the attachment levels recently changing, but this could be due to the commencement of adolescence. Finally, for the high frequency exercise group, one mother-daughter pair discussed that the mother has influenced the daughter in some aspects of her life such as physical activity behavior. Furthermore, this mother-daughter pair explained that the mother has provided much encouragement to participate in physical activities. On the other hand, comparatively the other mother-daughter pair was found to have a high level of encouragement, but lower maternal influence between the two. Nevertheless, at one point in the daughter's life, the mothers were found to be an influence in their daughter's development of physical activity behaviors, motivation and body image perceptions. There were similarities and differences found in each of the groups and this could be due to the different developmental stages the mother's and daughters were in at the time of the questionnaires and interviews.

Furthermore, with regards to encouragement, it is an essential aspect of the mother-daughter relationship if the daughter is going to continue to participate in any activity. As one mother explained, a parent may have an injury or disability, which does not allow them to participate in physical activity. However, if the parent strongly encourages their child to participate in physical activity, the child may adopt a higher level of physical activity, which is opposite of the parents behavior. Consequently, this opens the door to other possibilities of why some youths do and do not adopt similar behaviors as their parents.

With regards to the themes of the changes in relationship since the daughter entered high school and comparison with others, all the mothers and daughters reported similar opinions. They all discussed how the relationship between the two has changed since the daughter began high school, which possibly influenced the increase in comparison with others. With adolescence being a time of change and search for independence, the daughters begin to detach themselves from their mothers, which may be a reason why no significant results were found between the mothers and daughters in Phase 1 of this study. The mothers were once adolescent girls and they know that this is the time her daughter must and will gain her independence especially from her mother, just as she did when she was an adolescent. Therefore, the mothers must learn how to cope with her daughter's detachment from her mother in order for her to become the woman that she will grow up to be.

CHAPTER V

General Discussion

Overall Summary

The general purpose of this study was to examine the associations between mothers' and daughters' physical activity behavior, motivation, and body image perceptions using a multi-method approach. Phase 1 was quantitative (questionnaires) and served to identify and examine relationship between mother's and daughter's physical activity behaviors and motivation. With regards to physical activity behavior, based on SLT (Bandura, 1977) and past literature we predicted that mothers in the moderate exercise group would have daughters with the same level of physical activity. Our findings supported these predictions by showing that daughters in the moderate exercise group had similar levels of physical activity as their mothers, however not at a significant level.

Furthermore, our findings for the participants in the moderate exercise group are also in line with past studies, which suggest that parents who participate in physical activity themselves are more likely to have youth's who will participate in physical activity (Anderssen & Wold, 1992; Brustad, 1996; Hovell et al., 1995; Moore et al., 1991; Sallis et al., 1988; Yang et al., 1996). As for the mothers in the non- and high frequency exercise groups, we posited Social Learning Theory (Bandura, 1977) and Deviancy Model (Jessor & Jessor, 1977) against each other to predict that the mother's and daughters would either have the same (SLT) or opposite levels (DM) of physical activity. Surprisingly, quantitative data from Phase 1 did not support our hypotheses, as no significant differences were found between the different physical activity groups.

However, a trend appeared within the non-exercising mothers. Most of their daughters reported a high level of physical activity. Although not significant, this trend confirms our reasoning and illustrates that daughters may not always adopt similar behaviors as their mothers and thus supports the Deviancy Model. In effect, it is possible for daughters to observe their mother's behaviors and adopt an opposite behavior. In Phase 2, the mothers and daughters were found have more similar physical activity behaviors, which is consistent with Social Learning Theory. Furthermore, there may be many other aspects within the mother-daughter relationship, which could bring about the adoption of a similar or opposite behavior, such as attachment.

Attachment has been found to be an important issue when investigating parental influence. In fact, it has been the basis for the development of models such as the Deviancy Model. As discussed by DM, there needs to be a bond or attachment between two people in order for a behavior to be adopted. Thus, making the issue of attachment between two people important. Therefore, the issue of attachment was addressed in Phase 2 of this study. In general, it was found that the mothers and daughters felt they had a high level of attachment. This high level of attachment could be linked to the similar physical activity behavior scores revealed by the mothers and daughters in Phase 2. As discussed by the Deviancy Model, the higher the level of attachment between a parent and a child, the more likely that child will adopt similar behaviors as their parent.

The Deviancy Model originated on the assumption that adolescent problem behaviors are based on alienation from conventional social institutions and rejection of mainstream social values. Thus, it can be inferred that a youth who feels they are being unsupported by a parent will be less accepting of social values and undertake more

deviant type behaviors because of the distance that is felt between the two. Therefore, the attachment between a parent and a child is a fundamental aspect of the relationship, which is in need of further investigation. Therefore, it is suggested for future research, that the Deviancy Model be used to help better understand the process of adopting behaviors from a parent to a child.

With regards to motivation, based on studies using SDT (Cellar & Wade, 1988; Duda & Hom, 1993; Wild et al., 1992, 1997), which have examined the influence of significant other's motivation onto other's motivation, we hypothesized that mothers who were self-determined would have daughters who were also self-determined. No associations were found between the mothers' and daughters' self-determined motivation in Phase 1 and 2. This indicates that daughters do not necessarily adopt similar motivations as their mothers, which is not in line with past research. Studies by Cellar & Wade, (1988), Duda & Hom, (1993), and Wild et al., (1992, 1997) have found significant associations between parent-child motivations.

We also hypothesized that mothers who reported high levels of introjected motivation would have daughters who were also introjected or amotivated. No correlation was found between mothers' introjected and daughters' introjected motivation, however, a trend occurred with the mothers' introjected and daughters' amotivated scores indicating that while the mother's motivation stems from external sources such as guilt, the daughter's may believe that she has no control over her actions and the ensuing outcomes of these actions.

Phase 2 of the present study was qualitative (interviews) and served to obtain more in-depth perceptions into the body images of mothers and daughters at various

physical activity levels identified in Phase 1 and more specifically to examine associations between mother's and daughter's body image perceptions along with their motivations. Indeed, this phase provided us with more in-depth understanding into the mother-daughter relationship. With regards to body image perceptions, analysis of the interviews indicated that the mother' and daughters' had similar body image perceptions of themselves. Further, mothers and daughters in the non- and moderate exercise group reported having lower body esteem than the participants in the high frequency exercise group. Overall, the mothers and daughters in the moderate group reported having the lowest body esteem. All the mothers discussed being dissatisfied with their bodies at one point in their lives, however it is those mother's in the moderate group who continue to have this dissatisfaction. What's more, is those mothers who continue to be dissatisfied with their bodies were found to be the mothers who have a higher tendency to gain weight. As revealed through the interviews, it seems as the daughters in the moderate group have realized their predisposition to gaining weight and it seems they have taken it upon themselves to avoid similar body dissatisfaction. Also, most of the interviewees discussed participating in physical activity as a means of maintaining or losing weight in order to keep a positive body image perception. For the daughters' of those mothers' who have had constant battles with weight, they have adopted higher levels of physical activity in order to ensure their weight maintenance. In today's society, physical attractiveness is strongly dependent on how thin a person is (McKinley, 1999, Pike & Rodin, 1991). Consequently, young women especially feel that in order to achieve thinness they must participate in physical activity (at almost excessive levels) (Martin, Sinden, & Fleming, 2000). Therefore, daughters who felt their mothers are/were

overweight may adopt certain behaviors in order to ensure that she will not follow in her mother's footsteps. This became evident within the interviews with the overweight mothers (non and moderate exercise group), which supports our theory of mothers influencing their daughter's body image perceptions.

With respect to motivation, the mothers discussed the different levels of motivation towards physical activity they have had throughout the different stages in their lives while the daughters discussed their current levels of physical activity motivation. Generally, it was found that mothers were introjected and the daughter's were self-determined. Furthermore, findings from Phase 1 and 2 surrounding the mother's and daughter's self-determined motivation and introjected motivation did seem to correspond. In Phase 1, no significant results were found with the mother's and daughter's self-determined or introjected motivation. Furthermore, in Phase 2, two mother-daughter pairs were found to be self-determined and two did not, which indicates no correlation and three out of the four mother-daughter pairs were found to have differing introjected scores. But, the influence from the mothers' may occur before the daughter enters adolescence and it may also rely on other factors such as the level of attachment between the pair throughout the different stages in the daughter's life.

From the interviews, it can be inferred that the association between mothers and daughter's physical activity behavior, motivation and body image perception is convincing even though the results from Phase 1 do not significantly support this. A possible explanation for the lack of significance could be the influence the mother has/had occurred prior to the daughter reaching adolescence and/or perhaps due to the small sample size. Thus, based on the findings of the three groups, and their collaborative

summarized results, the qualitative portion of this study proved to be both important and beneficial in providing a deeper understanding of the issues surrounding physical activity behaviors, motivations and body image perceptions of mothers and daughters. Indeed, the presentation of the three groups proved to be both insightful and valuable by offering potential examples of non-, moderate and high frequency exercising mothers and daughters. Which in turn provides a more humanistic and subjective approach to the study of mothers and daughters.

Adolescence is a time for social independence and new discoveries. During this time daughters' will decrease their reliance on her mother for the answers about basic human survival. Adolescence is a time where discoveries about the self are made such as self-confidence, self-esteem and self-identity. The road to discovering the self can sometimes be a lonely one because detachment from parents is necessary. This may be why peers become so important in an adolescent's life. They all soon find themselves on the same path to self-discovery. With this being the case, it is a possible explanation why there were no significant results found with any of the issues investigated in this research. With the daughter's beginning adolescence, their reliance on their mother's is not as important as a few years ago, therefore possibly making it difficult to find any significant associations among this dyad at this particular time.

Knowledge Implication of the Findings

Physical Activity Behavior – Theoretical Implications for SLT and the Deviancy

Model

Physical activity has been a topic of much research. When investigating how youth develop and adopt physical activity behaviors Social Learning Theory (Bandura,

1977) has been a theory that has been highly useful and supported (Anderssen and Wold, 1992; Brustad, 1996; and Moore et al., 1991). On the other hand, the Deviancy Model (Jessor & Jessor, 1977) was a model, which was developed within the research of alcoholism. Consequently, to our knowledge the deviancy model has never been used to investigate the adoption of physical activity behaviors. As research by Sallis & Owen, (1999) illustrates some children do not adopt similar behaviors as their parents.

Therefore, SLT and DM were posited against each other in order to possibly understand and explain why some youths may or may not adopt similar physical activity behaviors as their parent(s). Trends from the present study support our predictions of some daughters adopting similar and opposite behaviors of their mothers. Therefore, the use of the Social Learning Theory and the Deviancy Model were found to be key in better understanding the associations between mother's and daughter's physical activity behaviors.

Specifically, the Deviancy Model was found to be a key aspect of the present study. The inclusion of the Deviancy Model allowed us to explore areas of physical activity behavior, which have not been done before. It also helped us with better understanding how youths possibly adopt or not physical activity behaviors from significant others.

Furthermore, the issue of encouragement was found to be another important aspect within the mother-daughter relationship. As discussed in Phase 2, some parents are not able to participate in physical activity behaviors themselves, but the use of encouragement such as providing the finances, driving their youth to practices and games helped them communicate to their youth(s) the importance of physical activity.

Consequently, suggesting that it is not only parental behavior, which influences their youth, but parental influences such as encouragement and comments made to their

youth(s). Furthermore, parental influence may also depend on the developmental stage (childhood, adolescence) the youth is in. Therefore, it is suggested that future studies investigate not only parental behaviors, but also parental influence at various developmental stages.

Motivation – Theoretical Implications for SDT

Based on the findings of the present study with regards to motivation, it appears that Self-Determination Theory provided a basis for better understanding the mother-daughter relationship in regards to motivation. Self-Determination Theory covers a vast range of motivation types, ranging in the degree to which they are considered to be self-determined. Therefore, this theory is able to provide a motivational means of explaining different qualitative aspects of human functioning, and gave more explanation into the different forms of self-determined or non-self-determined motivation. A trend within the correlations from Phase 1 indicated it is possible for motivation to be influenced unto others (i.e. from mothers to daughters in this case). Specifically, the correlations illustrated that the association between mother's and daughter's physical activity motivation is more complex than initially thought. The findings display the notion that some mother's and daughters may have similar self-determined motivations while others may have different motivations such as introjected and amotivated (non-self-determined motivation). In general, the mother's in the non- and moderate exercise groups displayed higher levels of non-self-determined motivation specifically introjected motivation towards physical activity. Furthermore, the mothers also discussed their changing motivations when they were younger and at different stages in their lives. Therefore, a key issue to take into consideration when investigating the associations between two

people with regards to motivation towards physical activity is the person's current levels of physical activity motivation. SDT was useful in helping to identify the specific type of motivation the participants currently had, however the results of this study support that the association between two people's motivation can be similar and opposite, it may just depend on the developmental stage that person is in at that time. Even though, the results from this study were not significant, that is not to say that the mothers' and daughters' motivation will become the same or was the same at one point in time.

Practical Implications of the Findings

Physical Activity Behavior –

While no significant differences were found between non-, moderate and high frequency exercising mothers and daughters in Phase 1 (quantitative), the trend in percentages lends to the idea that there is an association between mothers' and daughter's physical activity behaviors being both similar and opposite. Physical activity behavior has been investigated in a variety of contexts including the mother-daughter relationship as done in the present study. Sallis (1992) stated that it can be challenging to measure physical activity in young people because all of the available measures have substantial error and known limitations. However, a subjective perspective may bring new insights into physical activity research. In the present study, it was found that the associations between mothers' and daughters' physical activity behaviors that occur can be similar and opposite. The association between the mother and daughter may depend on a variety of contexts including the level of attachment and encouragement between the two. Buhrmester & Furman (1987) explain that during adolescence the influence of peers on most types of behaviors strengthens and the influence of parents weakens. However,

Sallis (1992) contends that parents still play important roles in their teenager's lives. Thus, parents should be encouraged to support their teenager's physical activity verbally and with direct assistance such as paying fees. However, the time frame in which the parent influences the youth should be taken into consideration. During Phase 2, it became evident that the influence a mother has on her daughter occurs at a much younger age. The bond that mothers and daughter develop between each other occurs almost immediately after the daughter is born. This bond continuously grows for many years, however when the daughter reaches adolescence it is a time for other bonds to occur such as with peers.

Body Image –

With the quantitative measure of the Body Esteem Scale, it was revealed that those interviewees in the high frequency exercise group had the highest body esteem out of the three groups. These findings provide little doubt that body image does influence physical activity participation. With the interviewee's high level of physical activity, they were able to maintain a weight and appearance, which was acceptable to them. Throughout the interviews, the daughter's commented on how their mother's would periodically discuss their personal opinions about their own bodies and appearances as well as their daughters' body or appearance. The pressure from society to be thin may spur these discussions between the mother and daughter. Therefore, the practical implications found from the results of the present study and past research (Smolak et al., 1999; Thelen & Cormier, 1995) suggests that the bond mothers and daughters develop when the daughter is young is the time in which the daughter moulds her beliefs about

her own body based on what she observes her mother doing and saying about her own body.

Further to these implications, results specifically from the moderate exercise group suggest that while body image does influence physical activity participation, physical activity participation also influences body image. Undeniably, the participants discussed that they felt better about themselves for a variety of reasons when they participated in physical activity. They all noticed a change in energy levels, stamina to finish work and their levels of happiness increased. However, are these outcomes purely from the participation in physical activity? The answer to this question is beyond the scope of the present study and is an area considered worthy of future investigation.

Broadening Horizons – The Importance of a Multi-Method Strategy

In the present study, the use of multi-method approach provided a more thorough and in-depth understanding into the psychological characteristics and perspectives of the mother-daughter relationship. Thus, the strength and advantages of both quantitative and qualitative methods, as discussed by Firestone (1987) were combined in this research. Specifically, it was the intent of the present study to combine both quantitative and qualitative methods to provide a more composite picture of the phenomenon of the mother-daughter relationship and specifically examine the associations between mothers and daughters physical activity behavior, motivation and body image perceptions. Consequently, the lack of significance in the quantitative and qualitative findings with regards to physical activity motivation indicates that this particular area is in need of further research. Certainly, the results illustrate that the mother-daughter relationship is one of great complexity, worthy of a combination of research approaches. Thus, while

methodological limitations (i.e. small qualitative sample size) in the current study imply that conclusions utilizing this information should be drawn with caution, the use of the multi-method strategy has provided an interesting and informative outlet for new insight into the mother-daughter relationship. Future study, using a variety of research strategies, should aim to provide further insight into the attachment and encouragement within the mother-daughter relationship.

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APPENDIX A

Contribution of the Authors

The contribution of the two authors (Julie Thom and Dr. Michelle Fortier) listed on the journal article comprising this thesis are outlined in this appendix.

Dr. Fortier and I both played a significant role in the elaboration and completion of this master's thesis and journal article. This research project was given birth through Dr. Fortier's grant project entitled "Maintenance of an Active Healthy Lifestyle in Youth Populations" that was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC). There were many advantages to having a research project embedded in a larger grant project (e.g. resources for data collection). I would like to mark my recognition and note my appreciation towards Dr. Fortier for involving part of my study in her grant project.

The specific topic of this study was decided through many discussions between Dr. Fortier and myself. Essentially, my interest in the field of mother-daughter relationships and body image perceptions was combined with Dr. Fortier's expertise and knowledge in the area of physical activity motivation. Throughout the entire process, I met regularly with Dr. Fortier to conceptualize, develop and evaluate this study at various stages.

With regards to data collection, Dr. Fortier contacted and received approval from the Ottawa-Carleton District School Board and the directors of nine high schools. She also established first contacts with heads of physical education departments in these high schools to provide general information about the study. After this was done, seven other researchers (John, Robin, Karine, Lynne, Clare, Alex and Stéphane) and myself, working in teams were responsible to meet with teachers and adolescents to explain the study more specifically, obtain parental consent and later, administer the questionnaires. More

specifically, I was involved in the second part of the longitudinal study. I collected the questionnaires from waves 3 and 4. These tasks were carried out under the supervision of Dr. Fortier. In terms of data management, I was responsible for half the data entry, preparing the demos for waves 3 and 4 and cleaning of the data bank. I would like to thank John Kowal and Stéphane Gaumond for their involvement in the cleaning of the data bank. I was also primarily responsible for conducting the data analysis required for Phase 1 of my study. Dr. Fortier was involved in all of those steps by providing information and resources.

For Phase 2 of this study, I was responsible for developing the interview guide, contacting the interviewees and arranging times for the interviews. I conducted all ten of the interviews (including the pilot study), and executed the main analyses and interpretations of this phase, again under the guidance and supervision of Dr. Fortier.

In terms of writing the thesis and the article I was responsible for producing numerous drafts of the final product. Each of which were revised by Dr. Fortier and returned to me for revisions. However, it should be noted that John Kowal also helped me in revising Chapters 1 and 2. The final article contained in this thesis is the product of our efforts, and has been prepared for submission in the journal, *Psychology of Women Quarterly*.

APPENDIX B

Mother Questionnaire

PARENTAL QUESTIONNAIRE II

Dear parent,

THANK YOU so much for participating in the first part of our study conducted in the Fall. Participation rates for this first wave of data collection were excellent and we greatly appreciate your help. As mentioned previously, this study is aimed at understanding adolescents' attitudes, perceptions and behaviors towards health and physical activity. We are now in the process of collecting a **second wave of data** from adolescents and their parents. Specifically, we are administering a questionnaire to adolescents in their physical education class and sending home a short questionnaire for parents to answer (the same parent that filled out the questionnaire the first time). Both of these questionnaires are **shorter** than the first ones (specifically this questionnaire should only take you **8-10 minutes** to complete). It is **very important** (for the success of our study) that you answer this second questionnaire. We know this takes a bit of your time and we truly appreciate your cooperation. For your convenience, we have included a preposted return envelop so that you may fill out your questionnaire and easily (and at no cost to you) send it back to us at the University. Finally, if you participate in this second wave your family will have the chance of winning a **300\$ prize**.

The following pages consist of questions regarding **YOUR involvement** in health related activities. Even if you do not do any physical activity or do not consider yourself to be healthy, we really need you to fill out the questionnaire. Please read each question carefully and indicate the extent to which the question corresponds to **YOUR personal experience**. It is important to answer, i.e., circle a number or choose an option for **EVERY question**.

This is neither a test nor an evaluation. Therefore, there are no right or wrong answers. We are simply interested in your **HONEST** responses to the questions and ask that you respond as **SERIOUSLY** and **TRUTHFULLY** as possible. It is important to carefully read all of the instructions.

You do not have to write your name on the questionnaire, therefore we CANNOT identify you. However for the study to be conducted successfully, we require, the date of birth of your 9th grade adolescent and the last 4 digits of your telephone number (for identification purposes only). **The information that you provide us with is strictly confidential (private) and will be used for research purposes only.**

VERY IMPORTANT

**DATE OF BIRTH (DAY/MONTH/YEAR) OF YOUR
9TH GRADE ADOLESCENT: _____/_____/_____**

LAST 4 DIGITS OF YOUR TELEPHONE NUMBER : _____

**Thank you VERY MUCH for your participation.
Michelle Fortier, Ph.D.
School of Human Kinetics
University of Ottawa
562-5800 (4275)**

9. BACKGROUND

Your age : _____

Gender : Female _____ Male _____

Weight (in pounds or in kilograms): _____

Do you smoke: yes _____ no _____

If you **SMOKE**, do you have the intention of stopping over the NEXT 6 months?

yes _____ no _____

How many hours of TV do you watch a day: _____ hours per DAY

Which high school does your adolescent attend? _____

WE THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

**PLEASE PUT YOUR QUESTIONNAIRE IN THE
ACCOMPANYING PREPOSTED ENVELOP AND SEND
IT TO US/DROP IT IN THE MAIL**

APPENDIX C

Daughter Questionnaire

**ATTITUDES AND PERCEPTIONS
TOWARDS PHYSICAL ACTIVITY AND HEALTH II**

We are conducting an important study to understand adolescents' attitudes, perceptions and behaviors towards physical activity and health. The following pages consist of questions about your involvement in health related activities. Please read each question carefully and indicate the extent to which the question corresponds to YOUR personal experience. It is important to answer, i.e., circle a number or choose an option for EVERY question.

This is not a test. Therefore, there are no right or wrong answers. We are only interested in your HONEST responses to the questions and ask that you answer as SERIOUSLY and TRUTHFULLY as possible. It is important to carefully read all of the instructions. If you do not understand a question, lift your hand, we will be pleased to help you.

\$300 PRIZE:

IF YOU FILL OUT THIS QUESTIONNAIRE SERIOUSLY AND TRUTHFULLY YOU HAVE THE CHANCE OF WINNING A **\$300 PRIZE AND YOUR CLASS MAY WIN A **PIZZA PARTY****

You do not have to write your name on the questionnaire, therefore we CANNOT identify you. However, we require your student number, date of birth and the last 4 digits of your telephone number (for identification purposes only). The information that you provide us with is strictly confidential (private) and will be used for research purposes only. That is, no one (not your friends, your parents nor your teachers) except us will see your answers.

VERY IMPORTANT

YOUR STUDENT NUMBER: _____

YOUR DATE OF BIRTH (DAY/MONTH/YEAR) : ____/____/____

THE LAST 4 DIGITS OF YOUR TELEPHONE NUMBER : _____

**Thank you for your participation.
Michelle Fortier, Ph.D.
School of Human Kinetics
University of Ottawa**

2. PHYSICAL ACTIVITY BEHAVIORS II

Please answer the following questions about the kinds of physical activities you have been doing in your **FREE TIME - outside of school physical education classes** over the **past month (4 weeks)**. For each activity you have done, indicate: **how often** you've done it in the **past month**, **for how long** you usually do it, and **at what intensity** (see below).

Intensity:

1 = mildly- minimal effort

2 = moderately- it gets the heart going but not too tiring, you start breathing a bit harder than usual

3 = strenuously-you do the activity vigorously, your heart beats rapidly, you breath hard, you work up a sweat

Type of Activity	How many times <u>LAST month</u>	How long at a time	At what intensity
Aerobics	_____	_____ minutes	1 2 3
Badminton	_____	_____ minutes	1 2 3
Baseball/softball	_____	_____ minutes	1 2 3
Basketball	_____	_____ minutes	1 2 3
Bicycling	_____	_____ minutes	1 2 3
Bowling	_____	_____ minutes	1 2 3
Boxing/kickboxing	_____	_____ minutes	1 2 3
Canoeing/rowing	_____	_____ minutes	1 2 3
Dancing	_____	_____ minutes	1 2 3
Floor exercises (sit ups...)	_____	_____ minutes	1 2 3
Football	_____	_____ minutes	1 2 3
Frisbee	_____	_____ minutes	1 2 3
Golf	_____	_____ minutes	1 2 3
Gymnastics	_____	_____ minutes	1 2 3
Hiking	_____	_____ minutes	1 2 3
Hockey (ball, ice)	_____	_____ minutes	1 2 3
Martial Arts (karate, judo)	_____	_____ minutes	1 2 3
Mountain/rock climbing	_____	_____ minutes	1 2 3
Racquetball/Squash	_____	_____ minutes	1 2 3
Rope jumping	_____	_____ minutes	1 2 3
Running/jogging	_____	_____ minutes	1 2 3
Skating (roller, ice)	_____	_____ minutes	1 2 3
Skateboarding	_____	_____ minutes	1 2 3
Skiing - downhill	_____	_____ minutes	1 2 3
Skiing - cross country	_____	_____ minutes	1 2 3
Soccer/rugby	_____	_____ minutes	1 2 3
Swimming	_____	_____ minutes	1 2 3
Tennis	_____	_____ minutes	1 2 3
Volleyball	_____	_____ minutes	1 2 3
Walking fast	_____	_____ minutes	1 2 3
Water skiing	_____	_____ minutes	1 2 3
Weight/strength training	_____	_____ minutes	1 2 3
Other: _____	_____	_____ minutes	1 2 3
Other: _____	_____	_____ minutes	1 2 3
Other: _____	_____	_____ minutes	1 2 3

5. MOTIVATION TOWARDS PHYSICAL ACTIVITY

Using the scale below, please indicate **to what extent you agree** with the following items concerning **YOUR REASONS FOR DOING PHYSICAL ACTIVITY**.

Strongly Disagree	Moderately Agree				Strongly	
Agree						
1	2	3	4	5	6	7

In general, when you do physical activity **WHY** do you do it?

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. For the enjoyment I feel when I am completely absorbed in the activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. To be attractive to others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Because people around me think it is important to do physical activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. To improve my health. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. For the pleasure I experience while learning new things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Because I feel pressured to do so by others (for example by my parents, by my friends). | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. To relieve stress. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. Because I enjoy learning about this activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I used to have good reasons for doing physical activity, but now I am asking myself if I should continue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Because I should do physical activity if I want to be in shape. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Because, in my opinion, it is one of the best ways to meet people. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. To feel good mentally. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. For the pleasure of trying to surpass myself in this activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. To live longer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. I don't know why I do it, lately I feel unmotivated. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. For the positive feelings I feel while I am doing something that I enjoy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. To improve my mood. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. Because I enjoy the feeling of improving through practicing this activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 19. Because I think its good for my overall development. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. For the excitement I feel when I am really involved in the activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. Because I must do physical activity to feel good about myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I don't really understand why I do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. To increase my resistance to illness and disease. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. For the satisfaction I experience while I am improving my abilities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. Because it is a good way to learn things which could be useful to me in other areas of my life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. It is not clear to me anymore; I don't really think physical activity is for me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. To improve my body shape. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. For the pleasure of mastering this activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. Because I would feel bad if I was not taking time to do physical activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. To maintain my physical well-being. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. To impress others. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. For the pleasure of discovering new activities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. Because it is one of the best ways to maintain good relationships with my friends and/or family. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. To show others how physically fit I am. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35. To increase my energy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36. Because I like the feeling of being totally immersed in the activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 37. To improve my appearance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 38. Because I would feel guilty if I wasn't doing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 39. Because I enjoy learning new skills. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 40. To lose or maintain my weight in order to look good. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
-

APPENDIX D

Body Esteem Scale for Adolescents and Adults

BODY ESTEEM SCALE FOR ADOLESCENTS AND ADULTS

Instructions: Indicate how often you agree with the following statements: ranging from "never" (0) to "always" (4). Circle the appropriate number beside each statement.

	Never	Seldom	Sometimes	Often	Always
1. I like what I look like in pictures.	0	1	2	3	4
2. Other people consider me good looking.	0	1	2	3	4
3. I'm proud of my body.	0	1	2	3	4
4. I am preoccupied with trying to change my body weight.	0	1	2	3	4
5. I think my appearance would help me get a job.	0	1	2	3	4
6. I like what I see when I look in the mirror.	0	1	2	3	4
7. There are lots of things I'd change about my looks if I could.	0	1	2	3	4
8. I am satisfied with my weight.	0	1	2	3	4
9. I wish I looked better.	0	1	2	3	4
10. I really like what I weigh.	0	1	2	3	4
11. I wish I looked like someone else.	0	1	2	3	4
12. People my own age like my looks.	0	1	2	3	4
13. My looks upset me.	0	1	2	3	4
14. I'm as nice looking as most people.	0	1	2	3	4
15. I'm pretty happy about the way I look.	0	1	2	3	4
16. I feel I weigh the right amount for my height.	0	1	2	3	4
17. I feel ashamed of how I look.	0	1	2	3	4
18. Weighing myself depresses me.	0	1	2	3	4
19. My weight makes me unhappy.	0	1	2	3	4
20. My looks help me to get dates.	0	1	2	3	4
21. I worry about the way I look.	0	1	2	3	4
22. I think I have a good body.	0	1	2	3	4
23. I'm looking as nice as I'd like to.	0	1	2	3	4

APPENDIX E
Interview Guide

INTERVIEW GUIDE

Mothers

PART 1:

1. With regards to your personal perception of your body:

Probe:

- a) On a scale of 1 to 10, what is your overall satisfaction?
- b) What is your ideal image body image (size) vs. current image (size)
- c) Which parts do you like? And why?
- d) Are there any parts you do not like?
 - 1) Have you done anything to change those parts?

2. In the different stages of your life has your perception of your body changed?

By stages I mean: teenager, marriage, pregnancy...

3. Do you do physical activity?

- a) Did you participate in physical activity last week?
- b) How many times last week?
- c) Are there certain reasons, more than others that motivate you to do physical activity?
 - i. If you don't participate in PA, why don't you?
 - ii. Do you think your daughter has the same reasons for exercising or not exercising as you?
- d) How is physical activity related to your perception of your body?
 - i. Do you participate in physical activity to improve your body image?

4. What kind of nutrition/eating habits do you have?

Do you diet often? If so, how often?

When did you start dieting?

What do you do when you diet?

What types of foods do you have at home? What is a typical meal?

Do you limit yourself to some types of food: follow some approach to dieting (e.g. weight watchers, the zone diet?)

Do you limit your family or insist on a particular type of nutrition at home?

PART 2:

5. Do you feel that you are close with your daughter? Rate in on a scale of 1 to 10.

Has your relationship changed over the years, specifically when she entered adolescence?

6. What types of subjects are you comfortable discussing with your daughter?

For example:

- a) Physical activity
- b) Diet
- c) Body image

Also, what do you discuss or what do you typically discuss with her?

7. Do you feel your daughter compares herself with others?

If so who? And in what way? What effect does this have?

8. Does your daughter diet?

If so, how often? What does she do?

9. Does your daughter illustrate concern about her diet or her body?

Since when?

Are these similar or different than yours? Since when?

If so, how are they similar or different? When did you notice that they were similar or different than yours? What do you think are the effects of her adopting a similar or different concern about her diet or her body to yours?

10. What are your perceptions of your daughter's body? How would you describe your daughter's body? (Current physiology)

11. Does your daughter participate in physical activity?

If so, how often?

Did she do physical activity last week?

Why do you think she does physical activity?

Daughters

PART 1:

1. With regards to your personal perception of your body:

Probe:

- a) What is your overall satisfaction?
- b) What is your ideal image body image (size) vs. current image (size)
- c) Which parts do you like? And why?
- d) Are there any parts you do not like?
 - i. Have you done anything to change those parts?

2. How is exercise related to your perception of your body?

(Do you exercise to improve your body image?)

- a) Did you participate in physical activity last week?

3. Are there certain reasons, more than others that motivate you to do physical activity?

If you don't participate in PA, Why don't you?

Do you think you participate in PA or not for the same reasons as your mother?

4. Has your appreciation of your body changed since you started high school?

5. Do you feel that you compare yourself with others?

If so, who, why, how, and what effect?

Do your feel that your mother compares you with others?

If so, who? What effect does this have on you and your relationship with your mother?

6. What kind of nutrition/eating habits do you have?

Do you diet often? How often?

When did you start dieting?

What do you do when you diet?

What types of foods do you have at home? What is a typical meal?

Do you limit yourself to some types of foods: follow some approach to dieting? (e.g. weight watchers, the zone diet)

How many meals do you eat a day? Do you skip a meal? If so, which one(s)?

Does your mother specifically buy certain foods for the family?

What are your preferred foods?

PART 2:

7. Do you feel that you are close with your mother? Rate on a scale of 1 to 10?

Are you open with each other?

Has your relationship changed since you entered high school?

8. What types of subjects are you comfortable discussing with your mother?

For example:

- a) exercise
- b) diet
- c) body image

9. Has your mother ever commented about your...to you?

- a) Diet
- b) Body
- c) Exercise habits
 - i. If so how, what?
 - ii. When?
 - iii. How did that make you feel?
 - iv. Non-verbal communication? (body language)

10. Does your mother diet?

If yes, what effect does it have on you?

How often? Which type of diet? Doing what? Since when?

- a) what is your perception of your mothers body?

11. Does your mother participate in physical activity?

If yes, what effect does it have on you? What do you think about that?

12. Do you feel that your mothers exercise and eating habits influences you to have the same type of behavior or opposite?

Why?

APPENDIX F

Ethics Approval Document



Université d'Ottawa • University of Ottawa

Cabinet du vice-recteur
à la recherche

Office of the Vice-Rector,
Research

HEALTH SCIENCES AND SCIENCE RESEARCH ETHICS BOARD

CERTIFICATION OF ETHICAL APPROVAL

This is to certify that the University of Ottawa Health Sciences and Science Research Ethics Board has examined the Application for Ethical Approval for the research project The Relationship between Mothers and Daughters Physical Activity Behaviors, Motivation toward Physical Activity, and Body Image Perceptions: A Multi-Method Study (File H04-00-12) submitted by Julie Thom. The REB found that this project meets appropriate ethical standards as outlined in the Tri-Council Policy Statement and in the Procedures of the University of Ottawa Research Ethics Boards and accordingly gave it a Category Ia (Approval). This certification is valid for one year from the date indicated below.

Lise Frigault

Protocol Officer for Ethics in Research,
for the Chairperson of the Health Sciences and Science REB
Valerie Whiffen

JULY 25, 2000

Date

FILE NUMBER: H04-00-12