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The role of motivation and physical activity in a weight loss program

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THE ROLE OF MOTIVATION AND PHYSICAL ACTIVITY IN A WEIGHT LOSS
PROGRAM

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

In

The Department of Kinesiology

by

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ABSTRACT

Every year thousands of overweight and obese people in the United States join weight loss programs such as Weight Watchers in an effort to become healthier and feel more attractive. Weight Watchers has increased its program focus on physical activity as a critical part of weight loss. Initiating a consistent physical activity routine, however, is generally one of the last behavior changes made by program members, despite its proven role in weight loss maintenance. Using self-determination theory as a framework, the purpose of this study was to examine how perceptions of fulfillment of three psychological needs (i.e. competence, autonomy, and relatedness), affected the motivation and physical activity patterns of five female Lifetime members of Weight Watchers, with the goal of exploring ways to facilitate motivation for physical activity in weight loss programs. The level of self-regulated motivation was also examined. Participants completed a Psychological Need Satisfaction in Exercise Questionnaire, kept written exercise logs, and participated in an in depth interview. Perceived need satisfaction for competence and autonomy facilitated participation in physical activity, but perceived relatedness was a key to overall psychological need satisfaction. Family, mind/body connections, and structure emerged as factors that served to enhance or constrain need satisfaction, and ultimately as either catalysts promoting need satisfaction or barriers to activity. Four participants mentioned guilt, an introjected externally-regulated motivation, as one motive for engaging in activity, but all five mentioned better health as a more internally-regulated motivation for their activity behaviors. Only one participant made comments that could be classified as indicative of intrinsic motivation for physical activity. The findings suggest that for weight loss programs to help their members lose weight, and keep it off, participation in physical activity should be introduced in a way that motivates the members to incorporate it into their

daily routines. Stressing improved health and fitness as a valued outcome of regular participation in physical activity and encouraging individuals to identify ways to satisfy the psychological need of relatedness through family support and structure are strategies that emerged in this study as having the potential to facilitate long term behavior change.

INTRODUCTION

The increased incidence of obese and overweight individuals in the United States (US) has brought with it some daunting problems. Approximately 2/3 of all adults in the US are overweight and more than 1/3 – over 72 million people – are obese (US Department of Health and Human Services [USDHHS], 2010). The US pays \$147 billion a year in health-related costs, not including costs to quality of life and the work force (Centers for Disease Control and Prevention, 2009). Overweight individuals are at greater risk for diabetes, heart disease, stroke, hypertension and cancer (USDHHS, 2009). Disproportionally affected are persons aged 50-69 years, as well as the entire populace of Louisiana, which ranks as the fifth most obese state in the country (Trust for America's Health, 2010).

In an effort to become healthier and feel more physically attractive, thousands join weight loss programs such as Weight Watchers every year. The current Weight Watchers PointsPlus program has integrated physical activity as one of four basic life skills to be mastered for successful weight loss. Initially, new members are encouraged to incorporate healthy eating changes into their daily lives which usually results in immediate weight loss. At the same time physical activity is also mentioned during the program's new member introduction session. Members are urged "to be active whenever and however you can" in order to accumulate bonus activity points they can in turn convert to extra points for food. When members next undertake increasing physical activity, weight loss plateaus or even a temporary weight gain, coinciding with members' muscles becoming accustomed to more physical activity may result. Another problem is new members tend to overestimate the actual amount of new physical activity done thus eating more calories than they should. Novice members may also believe all the extra effort exerted during physical activity should exponentially increase weight loss; thus some may

become discouraged and quit exercising when this outcome is rarely realized. Unfortunately, for various reasons, very few members incorporate physical activity into their weight loss process, let alone into their permanent lifestyles, even though Weight Watchers refers to activity as a “critical component of a weight maintenance effort.” This research project explores the motivation and physical activity patterns of Weight Watchers Lifetime members. Their feelings about physical activity and how these individuals have incorporated exercise into their healthier lifestyle is a primary focus. Specifically, the role that the need for relatedness, or perception of meaningful connection to others or community, has in facilitating or hindering adding physical activity into their daily routine is examined.

REVIEW OF LITERATURE

Recent clinical trials have found that dietary changes are usually necessary for initial weight loss, but that the addition of physical activity is needed to help maintain the weight loss permanently (Redman, et al., 2007; Ulen, Heizinga, Beech, & Elasy, 2008). While the general strategies that lead to weight loss are generally well understood, the behaviors needed to maintain that loss are not as clear (Sciamanna et al., 2011). When adults who maintained weight loss for at least a year were interviewed they reported a consistent exercise routine was a weight maintenance strategy but not included as a method to lose weight initially. On the other hand, engaging in a variety of exercises was revealed as a strategy for weight loss initially but not for maintenance of that loss. Unfocused physical activity aided their weight loss from the beginning. An extended study examined the difference in weight loss between a group of overweight individuals being physically active roughly 30 minutes a day expending 1000 k/cal/wk and a group which was active up to 75 minutes a day expending 2500 kcal/wk. At six months there was no significant difference in weight loss between the participants. Interestingly though, at eighteen months the group with higher physical activity goals achieved larger weight losses (Jeffery, Wing, Sherwood, & Tate, 2003).

Individuals successful at weight loss maintenance reported making substantial behavior modifications specifically including physical activity 30-60 minutes per day which is more than current CDC recommendations. Regular exercise was reported as the behavior most strongly associated with successful weight loss maintenance. Participants emphasized physical activity on the order of one hour a day on par with growing research consensus (Befort et al., 2008). Saris et al. (2003) suggested that prevention of unhealthy weight regain in formally obese individuals required an activity level in the range of 60-90 minutes of moderate intensity activity a day.

Self-Determination Theory

The degree to which people are likely to change their behavior is contingent on the extent to which they are motivated to change. With this in mind, self-determination theory (SDT) can be used as a theoretical framework to investigate possible ways to motivate individuals to become physically active (Deci & Ryan, 1985). Over the past 20 years, SDT has been used as a framework for health care intervention-based studies looking at the effects of changing lifestyles, behaviors, and motivations of individuals. Most of the SDT studies were focused on smoking cessation, medication adherence, dental care, diet, and physical activity (Ryan, Patrick, Deci, & Williams, 2008). SDT conceptualizes motivation along a continuum of autonomy from amotivation (the lack of intention to act), to external regulation, through gradually increasing levels of internal self-regulation, ending in total intrinsic motivation. Intrinsic motivation is action undertaken for the satisfaction inherent in the activity (Ryan & Deci, 2007). A key element of SDT is the satisfaction of the three psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). The characteristics of autonomy include an internal locus of control and the perception that behaviors are freely chosen. A need for autonomy reflects a desire to engage in activities of one's choosing. Competence is characterized by a sense of mastering challenging tasks and the perception of being effective in the things we do. Relatedness depends on meaningful connections, satisfaction and involvement with others. This psychological need is bidirectional. There is a component associated with an individual feeling cared for and alternatively an individual can be actively initiating the relationship. Fulfilling these needs increases an individual's self-regulated motivation, resulting in physical activity engagement as an end in itself. Higher levels of self-regulated motivation have been associated with positive outcomes, such as increased physical activity, whereas more extrinsically regulated

motivation and amotivation have resulted in maladaptive behaviors, such as decreased effort and contingency-based physical activity.

In order for an individual to fully incorporate a behavior into their daily routine, all three basic psychological needs must be met. Together the complementary basic needs provide optimal behavior integration and work as a unit to foster intrinsic motivation (Hagger & Chatzisarantis, 2008). Research has confirmed that perceived needs satisfaction facilitates self-determined physical activity motivation (Ntoumanis, 2005; Standage, Duda, & Ntoumanis, 2005) with relatedness making a positive contribution (Cox, Smith, & Williams, 2008; Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2006). Autonomy and competence have been shown to be the most powerful influences, with relatedness playing less of a role in maintaining intrinsic motivation (Deci & Ryan, 2000). Ntoumanis (2001) and Standage et al. (2006) found perceptions of competence to be the most important predictor of motivation in physical education, specifically affecting boys' amotivation to a greater extent than girls' (Ntoumanis, Pensgaard, Martin, & Pipe, 2004). In earlier studies, Standage, Duda, and Ntoumanis (2003) determined relatedness to be most important, particularly in girls; and, a lack of perceived relatedness was emphasized as hindering motivation in PE more than in boys (Ntoumanis, 2001; Ntoumanis et al., 2004).

Relatedness can be seen as bidirectional with individuals feeling connected as they provide affiliation to others and perceiving that they belong through others' actions. Although distinct from relatedness, social support which is relationship-based, was viewed as correlating with physical activity (Koehly & Loscalzo, 2009; Lorentzen, Ommundsen, Jenum, & Holme, 2009), particularly in an overweight population (Felton & Parsons, 1994), and was shown to be the strongest predictor of exercise among women (Hall, 1998). Participants reported exercise as

a way to meet people, enhance current friendships, and build companionship. Conversely, not liking to exercise alone and having friends who do not exercise have been identified as reasons for not exercising (Dergance et al., 2003; Ebrahim & Rowland, 1996; Myers & Roth, 1997). Participants who were currently exercising but wanting to increase their exercise frequency reported the lack of an exercise partner as a contraindication to increased exercise (Johnson, Corrigan, Dubbert, & Grambling, 1990).

Not all research has reported a positive relationship between social networks and healthy lifestyles (Befort, Thomas, Daley, Rhode, & Ahluwalia, 2008). A correlation between adolescent Body Mass Index (BMI) and peer-group BMI, with obesity spreading through social ties, has been reported. Conversely no evidence has yet shown that the relationship between peer-group weight and individual weight change is symmetric (i.e., weight loss also spreads through social networks) (Trogdon, Nonnemaker, & Pais, 2008). This lack of support is striking given that a significant amount of evidence exist establishing relationships among family and social pressures and affiliations that contribute to anorexia, at the other extreme of the weight maintenance continuum. Furthermore a study of obese adults, primarily females, reported experiencing the worst obesity bias with family members (e.g. parents, spouses and other relatives) or friends (Puhl, Moss-Racusin, Schwartz, & Brownell, 2008). When younger age groups are taken into consideration there are similar findings. For example children in a study by Talen and Mann (2009) reported that adult peers proved to be less than supportive towards their physical activity endeavors. Additionally, community-based interventions promoting physical activity for young people have produced equivocal results (Biddle, Gorely, & Stensel, 2004). Marriage has been found to increase the BMI of both men and women, as well (Averett, Sikora, & Argys, 2008).

When examining SDT research, the majority of studies utilize self-report questionnaires such as the Basic Need Satisfaction Scale to analyze how satisfying the need for relatedness affects participation in physical activity (Cox & Williams, 2008; Cox et al., 2008; Ntoumanis, 2001; Ntoumanis, 2005; Ntoumanis et al., 2004). Perhaps the significance relatedness plays in motivating physical activity is less frequently reported due to measurement issues associated with self-report measures. As a result, this research is designed to delve deeper by examining the role of relatedness in influencing people's behavior from a qualitative perspective. Utilization of the qualitative research techniques of face-to-face interviews and analysis of written exercise diaries has the potential to provide unique insight concerning the role relatedness plays in weight loss members' perception of physical activity. The exploration of participants' perceptions of how relatedness affects whether or not they start being active, when and why they do activity, and most importantly, whether or not activity becomes part of their daily schedules addresses a gap in the existing knowledge base.

This study investigated the role that needs satisfaction, with the primary focus on relatedness, plays in the physical activity behaviors of members of a weight loss program. Capturing the participants' feelings and opinions about physical activity can be accomplished by using a reality-oriented correspondence methodology (Patton, 2002). Reality-oriented theory answers foundational questions such as: "What is going on in the real world?" "What can be established with some degree of certainty?" "What is the truth insofar as we can get at it?" (Patton, 2002, p.91) When self-report, closed-answered questionnaires, such as the Basic Need Satisfaction Scale, are used to assess the effects satisfaction of the need for relatedness on participation in physical activity, the participants' actual thoughts and feelings are not taken into account. Social contextual factors may be more important to an individual's feelings of

relatedness (Cox & Williams, 2008; Standage et al., 2003) and may go unreported when standardized questionnaires are used. The relative impact of each psychological need will vary depending on the functional significance of the situation. Based on the situation, an individual who perceives relatedness as most important will be motivationally impacted by perceived relatedness most significantly (Deci & Ryan, 1985). By including the use of the qualitative techniques such as interviews, open-ended questions, and written exercise diaries, participants can express how relatedness is perceived in the context of their physically active (or inactive) lives

This research examines the motivation and physical activity behaviors of Lifetime members of the weight loss program Weight Watchers. Their opinions and feelings about physical activity as well as how these individuals have incorporated exercise into their healthier lifestyle is a primary focus. Special attention on the role the need for relatedness, or perception of feeling respected, understood, and cared for, has had in influencing incorporation physical activity into their daily routine is examined. Using SDT as a framework the effects their perceived psychological need satisfaction has on the degree of self-determined motivation to be physically active is also explored.

METHODS

Participants

Five Caucasian female participants 46–58 years of age were selected using a criterion sampling strategy. The group was composed of two leaders, Candy and Holly, and three receptionists, Faye, Linda, and DeDe. A program leader oversees the meeting room experience and is responsible for preparing and delivering the predetermined weekly meeting topic. She is available to greet incoming members during the pre-meeting weigh in and delivering the getting started informational session post-meeting. The receptionists' basic responsibility is providing a caring weigh in to each member. Individuals holding each position are available to provide members any support they may need to be successful at weight loss. Inclusion criteria were a) meeting the basic milestone of achieving Lifetime status in the Weight Watchers weight loss program, b) maintaining that status for a minimum of three years, and c) being employed by the program. Lifetime status is achieved by reaching a program recommended, appropriate goal weight, based on healthy BMI parameters, maintaining that weight for six weeks, then weighing in once a month thereafter at a weight no more than two pounds over goal.

Linda has been a member of Weight Watchers for over 30 years, and has been at lifetime status for 25 of those years. The interview was conducted sitting on the couch in her living room. Her caged finches chirped incessantly as a premature dusk overtook the room. The scene through the picture window changed as the storm that had threatened all day finally culminated in torrential rainfall as the interview progressed.

Faye has not been involved with Weight Watchers quite as long, having been a member for eleven years, ten of those at lifetime status. The interview was conducted outside on her patio while her dogs romped in the grass nearby enjoying the warm sunshine.

A relatively new employee, Holly has been with the program for only four years, three of those at lifetime. The interview was conducted at the author's kitchen table after Holly drove through torrential rain which slowly subsided as the conversation progressed.

DeDe, a ten year member with four years at Lifetime, was interviewed right after her Saturday morning workout. The meeting was held at an impersonal Weight Watchers meeting room.

The keeping room in Candy's kitchen provided an inviting setting for the interview of this twelve year Weight Watchers member. A lifetime member for eleven years, she had just returned from a workout at the local YMCA.

These individuals are ideal participants because each has gone above and beyond making the decision to lose weight. They have set a weight loss goal, achieved it, and have decided to work to help others with weight issues accomplish their goals. These individuals have been through the program itself and have been trained to deliver the program's healthy guidelines, and should be living them, as well. Written informed consent was obtained from each participant, and the protocol was approved by the LSU institutional review board.

Role of Researcher

This research was undertaken with a reality-oriented theory perspective. The goal is to observe and describe real world behavior patterns and motivations (Patton, 2002). The author has tried to maximize the validity of the study through the use of credible, systematic data collection methods. This research was conducted to posit and document probable causal explanations for the physical activity behavior patterns of the participants (Marvasti, 2004). Although the author has been a Lifetime member of Weight Watchers for 12 years and has worked for the organization for almost ten of those, every effort has been made to report the findings in a factual

manner. The author's association with the organization as well as a personal relationship with the participants increases the credibility of interpretations of behavior because of the researcher's firsthand knowledge of the subject. The author has a valuable understanding of the program having come through as a novice member. In her position as an insider, the special trust and rapport with her fellow associates may result in a more open discourse with the participants. This investigative technique has a strong potential for researcher bias; thus, a description of the rigorous data collection methods instituted to reduce possibility of researcher bias follows.

Data Collection/Procedure

Time Line. Once the participants agreed to take part in the study, they completed the Physical Activity Readiness Questionnaire (PAR-Q) and began entering physical activity related information into their logbooks. Within ten days of the initial contact, the exercise log was retrieved and an interview appointment set up at the participants' convenience. The interview transcription was completed within 3 days of the appointment. Overall research specific contact with each participant was approximately three weeks.

Measures

Physical Activity Readiness Questionnaire (PAR-Q). This instrument was administered to identify any adults that should be cautioned to consult a physician about any possible safety risks associated with being physically active.

Demographic questions were included to collect pertinent information concerning the length of time participants have been involved with Weight Watchers, and the number of years in which they have maintained their weight loss, as indicated by number of years for which they maintained their Lifetime status. Employees of the company must be Lifetime members in good

standing (no more than two pounds over goal weight) to continue to be employed. Participants' ages were also collected.

Motivation Questionnaire: The Psychological Need Satisfaction in Exercise Questionnaire (PNSE) Scale. The PNSE scale (Wilson, Rogers, Rodgers, & Wild, 2006) has been altered to apply to physical activity exchanging “exercise” for “physical activity.” This instrument was designed using the tenets of SDT, and was administered to assess the participants' perceived levels of competence, autonomy, and relatedness. The participants were instructed to answer the eighteen randomly ordered items, while thinking about how each item relates to their life and then to indicate how true it is for them using a 7-point Likert scale from 1 = not at all true to 7 = very true. Perceived competence support was measured using six items numbered as 1, 5, 6, 8, 12, and 17. An example item was “I feel that I am able to complete physical activity that is personally challenging.” To assess the degree the participants' perceived autonomy support the six items numbered 2, 4, 10, 11, 14, and 18 were completed. A sample item was “I feel free to do physical activity in my own way.” Additionally, to assess participants' perceived relatedness six items numbered 3, 7, 9, 13, 15, and 16. “I feel attached to my physical activity companions because they accept me for who I am” is an example item. A mean perceived need index was calculated for each of the three needs.

Physical Activity Log. This self-designed log was developed with the guidance of an experienced researcher. Administration of this instrument ensured a self-reported daily record of the physical activity the participant engaged in during seven days prior to the face-to-face interview. The completed log is a physical record of what, when, and how a logged activity was performed, as well as the motivation behind the behavior. The participants recorded their physical activity for seven days prior to the interview with the understanding that it would be

reviewed by the researcher prior to the interview in order to provide opportunities for discussion/clarification of anomalies.

Interview. Each participant was interviewed individually on one occasion at their convenience. The face-to-face interview lasted approximately 30 minutes. A semi-structured interview guide was developed, based on the sensitizing framework of the SDT, and the guide incorporates topics including motivational regulation, facilitation, and history of physical activity and weight loss (Patton, 2002). An experienced researcher whom has an extensive background in qualitative research, critically reviewed the initial guide multiple times before the final version was completed. Flexibility of the interview topics was ensured by the use of probes as follow ups to the predetermined questions, to allow the interviewee and interviewer to investigate any emergent themes of interest. Each interview began by obtaining permission to audio tape the session to ensure accuracy, followed by an explanation that the interviewer is interested in their experiences, opinions and feelings towards physical activity and reassurance that their identities would remain anonymous (Seale, Gobo, Gubman, & Silverman, 2004). The interviewee's attitude and physical demeanor were noted throughout the interview. Interviews yielded direct quotations from members about their experiences, opinions, and feelings which provided in-depth information from members as to how their feelings of relatedness hinder or promote their exercise routines (Patton, 2002). These direct quotations add authenticity to the results and represent the views of those under study (Biddle, Markland, Gilbourne, Chatzisarantis, & Sparkes, 2001). The interview guide can be found in the Appendix. A verbatim transcription of each interview was completed within approximately three days after the initial face-to-face meeting.

Data Analysis

SDT was used as a sensitizing framework in this research design (Wolcott, 2001). Data collection was structured around its tenets. Content analysis and analytic induction (Patton, 2002) were used to reduce the information obtained in the transcribed interviews, exercise logs, and PNSE into patterns and themes, organized systematically around the overall SDT components. First-level transcript coding was done to differentiate and label word phrases into categories (Miles & Huberman, 1994). Marginal remarks and color coding were also made to help with data organization. More defined themes were grouped during the next step of pattern coding. Themes were realigned into major topics for final examination.

Mean scores of the perceived need index for each of the three psychological needs was calculated for each woman based on the participant's completed motivational questionnaire. This index was used to explain how each woman's perception of their needs being satisfied affected their physical activity behavior.

Validity. Multiple measures and data collection techniques were utilized to increase the validity of the research findings. All of the data was firsthand (Shank, 2002). The informants met all the mandatory criteria and the data was collected one-on-one. The researcher analyzed the participant-completed instruments prior to the interview and took the opportunity to discuss and clarify any discrepancies. Higher order themes were corroborated by triangulation of a quantitative instrument, participant self-report documentation, and one-on-one interview (Creswell & Miller, 2000). Member checks provided participants the opportunity to review, provide feedback, and verify statements for accuracy of written versions of the audio transcripts (Patton, 2002).

RESULTS

Descriptive data for each participant are presented in Table 1.

Table 1: Descriptive Data

	Competence	Autonomy	Relatedness	Weight Watchers membership/years	Lifetime Status/yrs.	Age
Candy	3.50	6.00	5.17	12	11	57
DeDe	7.00	6.00	7.00	10	4	46
Linda	4.83	5.83	6.67	30	25	58
Holly	5.33	6.00	5.17	4	3	47
Faye	6.33	6.50	5.83	11	10	56

Activity logs were completed and evaluated. Candy's recorded activity consisted of no less than 30 minutes but as much as 195 minutes a day, seven days a week at her fitness club. A recent reduction in her hourly work week and realization that a physical activity interview was imminent led her to over extend herself. She said that her log reflected her wanting to try different exercise classes with different teachers to determine what interested her. Her goal was to finalize her workout to 60 minutes a day, three days a week. Before that week, Candy explained that she viewed the walking she did in connection with her work with Weight Watchers as her main form of physical activity.

For the past two and a half years, DeDe consistently has attended a boot camp class 50 minutes a day, 6 days a week. Even though an ankle injury prevented her from fully participating as a co-member of the class and perform the scheduled workout, she went to the gym at the scheduled time to ride the stationary bike for 30-40 minutes so she could exercise with her "group."

Linda's log reflected that twice a week she consistently did a 60 minute pilate's/gyrotonic with her former physical therapist, something she has faithfully done for many years.

Additionally she spent almost 12 hours doing yard work and spring cleaning, which she advised was more than normal household chores for her.

The total physical activity Holly recorded included a 25 minute walk/jog and a 30 minute family neighborhood walk. She was interviewed in the summer and said that when the kids were in school her normal work outs totaled closer to four a week.

Faye's activity log was left blank. She had broken her foot the week before participating in this project. Her normal week included running 3-5 miles, five days a week with up to seven miles on Sunday. Also, she had been doing P90X workout tapes three times a week. Even with her injury she had walked the dogs 30 minutes a day and mowed the lawn.

Data were analyzed using the tenants of SDT as an organizing framework to guide inductive analysis. According to SDT, the satisfaction of the three psychological needs of competence, autonomy, and relatedness should increase the level of self-determined motivation (Deci & Ryan, 2000). First, interview transcripts were carefully examined with the intent of identifying factors that either enhanced or constrained the satisfaction of those needs. Three dominant themes encompassing those factors were voiced by participants: family, mind vs body, and structure. Within SDT, motivation is conceptualized along a continuum from low to high levels of self-regulated motivation. Amotivation, which is a lack of intention to act, is at one end of the continuum reflecting no motivation. Levels of self-determination progress gradually increasing levels of self-regulated extrinsic motivation, from engaging in an activity because you have to, to doing something because you feel that you should, to participating because you want to or because you begin to value the activity. The highest level of motivation on this continuum

is intrinsic motivation, where individuals engage in a behavior as an end in itself. The second major emphasis in the analysis was to explore the participant's motivation to be physically active as situated on this continuum. The two themes of avoiding guilt and better health came to the forefront as participants' reasons for being physically active.

Need Satisfaction

The satisfaction of the three psychological needs of competence, autonomy, and relatedness is viewed as the mechanism whereby individuals move toward more self-determined forms of motivation. One focus of the interview was to examine the impact perceived satisfaction of these three nutrients had on the participants' physical activity behavior. All of the participants expressed the importance perceived need fulfillment played in their feelings towards physical activity. Relatedness in particular was pivotal in many instances to their activity choices and motivation to be active. Subsequently these needs grounded the thematic development in the inductive analysis. Three themes emerged as either catalysts in promoting perceived need satisfaction or barriers towards inactivity: family, mind vs body and structure.

Family. When asked how they felt about physical activity and the role it played in their lives, the majority of the participants mentioned the topic of family. The perception that the absence of family support inhibited need satisfaction was a recurring theme. Spouses and significant others in the participants' lives had an important impact on their daily activity routines. Linda, frustrated with her current less-than-optimal daily physical activity level related that "Ralph (her husband) and I have always had so little time, really together time" and she "keep(s) holding out hope that he's going to start, you know, walking with me or we're going to start biking more...It would be nice to have your spouse as a partner to do this (physical activity)

with.” Having her husband as a physical activity companion would motivate Linda to be more active.

Holly echoes Linda’s feelings, saying she also “would jump in a second” to walk with her husband because she “loves...doing two things bonding and walking at the same time.” As the interview continued she made further comments providing deeper insight into her marital relationship and the effects it had on her activity schedule. At first glance Holly’s expression of how fortunate she was to have a husband who “works with her” when needed so she can fit physical activity into her busy schedule can be viewed as a positive step towards promoting her daily activity. Closer inspection, however, suggests Holly also viewed physical activity as an outlet or even as an escape from family obligations. She commented that a primary reason for including activity in her routine was because “I like to do (physical activity) when I’m stressed out. I like it for a get-away...a reason to get out of the house.” She suggested that physical activity was “an excuse for my husband has to get the kids ready for school...he works with me if I’m exercising.” Physical activity is one of the few options Holly has to get her husband’s help with their children.

Although Faye felt very much in control of her physical activity regime, as indicated by a perceived need satisfaction for autonomy index of 6.50, she also mentioned that her family can be less than supportive at times. When considering going to the neighborhood gym, she first has to ask herself, “Do I have time to do an hour work out and get home and have dinner in time? You know that’s because I have a husband. If it were just me (laughing) it wouldn’t be a problem.”

DeDe allowed very little to alter her physical activity routine as evidenced by her autonomy index of 6.00. DeDe cited only two factors that would interrupt her physical activity

plans, “my animals or my daughter.” When anything unexpected arose other than a family emergency she would “usually just tell them I will be in within the next hour,” and she then attend her scheduled exercise class first.

Candy said the impetus for her to join the YMCA was watching how the sedentary lifestyle both of her parents lived ended in long illnesses and poor health. She felt being physically active would help her avoid that condition. She wanted to “workout” and “eat healthy” to emulate her “best friend’s mother who was a second mother to me . . . she lived to be 91 with good quality of life to the last few weeks of her life.”

Mind vs Body. The participants’ perceptions of themselves in the context of physical activity factored prominently in whether or not they perceived their psychological needs to be met. Participants mentioned that they saw themselves as less than competent, based on some physical inadequacy, to take part in a particular physical activity.

Linda’s questionnaire responses reflect this theme. She indicated she felt very confident about being able to complete physical activity that is personally challenging but she did not have a high level of confidence about the way she was able to complete challenging activities. She explained “I think it’s more a mental thing in that I’m not doing as much as I need to be doing...it’s getting the mind focused and the body...everything on the same page.” Although Linda was doing some structured physical activity, currently she reported she was not meeting her physical activity goals; that perception is reflected in her competence index of 4.83 (out of a possible 7.00). Faye also felt she was less than capable of doing the most challenging activity but overall she felt very confident in her ability, as reflected in her perceived competence index of 6.33. She commented:

In my brain I feel like I can do this...but a lot of times my body doesn't let me do it.

Mentally I feel like I can do whatever I want to do. But realistically I don't think that my knees would let me.

She admitted that she could talk herself out of doing an activity based on a perceived physical imperfection.

Candy attributed her very low perceived competence index (3.50) to the way she viewed her abilities, not on what she had actually accomplished. She summed up her feelings, "I don't see myself as an exercise person." Unfortunately this perception kept her from being more physically active. Holly explained her perceived competence index of 5.33 as a reflection of how she felt about aging and her thinking concerning a knee injury sustained early in life: "I don't feel like I can do everything I maybe want to do but I can do close to it." She excused herself from keeping up with others in her exercise class explaining "they (the instructor) always showed you the low impact so anything I didn't feel confident doing I could do the low impact and complete the class." Holly observed that she did not "push me to do what the 20 year olds are doing yet at the same time I can do a version of it that works for me." Even DeDe, the youngest interviewee, confided that when contemplating signing up for a boot camp class she almost talked herself out of signing up because she "didn't have any confidence," she "figured I was too old...not in good enough shape."

Candy, with a perceived autonomy index of 6.00, confided "I definitely feel more in control, but the confidence is what probably kept it from being on the far right (very true). You know as really strong because I'm still not sure what I'm doing but I definitely feel like if I want to change it up I can change it up." Even though she saw herself as less than capable, she had taken the initiative to change her workout routine by reducing the weight she was lifting.

Perception being the key, Candy also confessed her “love” for “new wicking clothes.” Smiling she confided “when you’re wearing it you feel more athletic,” which in turn has positively affected her perception of her physical activity capabilities.

Structure. Structure played an important part in their physical activity behaviors for all of the participants. The structure of their daily routine as well as the structure of their chosen workout environments had a powerful influence on the perceived satisfaction of their needs. When Candy had the opportunity several years ago to participate in a supervised weight training she loved the resulting increase in body tone. Even though the experience was positive she discontinued the activity, she delayed getting involved with weights again until just recently. She explained, “even though I have wanted to do weights for a long time ...they’re intimidating...the machines. If (you) don’t do them right you can hurt yourself. I am a visual person. I want someone to show me.” So she had put off doing weights. Fortunately the supportive environment her fitness club membership provided her the opportunity to “go around with a trainer who demonstrated each machine” which “gave me a real confidence that I knew what I was doing.”

Structure not only affected Candy’s sense of confidence it increased her feelings of connectedness as well. Calculated at 5.17, Candy’s perceived relatedness index is lowered by one “not at all true” response. She explained this answer was based on the fact that she had just started going to the fitness center and she did not feel attached to the members of the activity classes commenting, “they don’t know me yet.” She was confident that an eventual attachment would develop, asserting that it “would be true once I get to know them and they get to know me.”

Overall feelings of relatedness were important to Candy and factored prominently into her commitment to being physically active. “The structure of the group is what’s supporting my efforts. It keeps me going.” Working out with others “keeps me going” and “is more fun...group effort.” Past solitary attempts at physical activity had resulted in “cut(ting) it short”, “not do(ing) it as intensely,” and “doing it later, later never comes.” She observed that when she was working out with others “they are so glad you’re there” and described the class leaders as inspirational. “I loved (the class). I loved it” depicts the pull Candy felt would keep her motivated to develop and continue her new active routine. The structure and guidance associated with having personalized weight lifting routines and professionally led aerobic classes made her feel that “I’m not beholden to this piece of paper or the particular class. If it’s not working for me anymore I’m going to find something else.” She admitted that “I already changed some weights. Some were too hard and I moved them down five pounds.” She went all out the week she completed her activity log, spending no less than 30 minutes but averaging over an hour at the YMCA all seven days. Her goal was to put together a workout routine, three days a week including Zumba, a spin class, and weight training that would work for her “most efficiently, you know, maximum return on minimum time.” The routine she saw herself continuing was the “kind of structure (that will) help me make it part of my life” because “it’s convenient and it’s all together.” Her behavior can be seen as externally motivated overall but hopefully would continue because “it is fun to think of yourself as an activity person.”

DeDe’s feelings about her ability to perform adequately in any physical activity she decided to participate in are reflected in her perceived competency index of 7.00, although this had not always been the case. Initially the encouragement of a trainer led her to join. This

blossomed through a structured boot camp class into the support of her fellow boot camp participants and she proudly reveals:

I just know what I can do now...you know it just makes you feel good, me as a woman and 46 that I'm doing the same thing that (the trainer) is doing and I'm doing just as well as he's doing it and that's an accomplishment thing

When questioned as to her reasoning behind the two "somewhat true" responses to autonomy related questions on the questionnaire DeDe replied:

I don't make up the (boot camp) class. He (the instructor) makes up...I mean class changes every other day so he makes up the exercise we do that day so you never...I don't have any choice of what exercise we're doing that day. I do what he tells us to do.

With this in mind she perceived herself to be in less than total control of her physical activity routine. At this point she perceived the structure of the class as giving her the support she needs to make the choice to attend 6 days a week. DeDe's feelings about physical activity stem from her association and cohesiveness with the members of the boot camp she has been attending for almost three years. This class was also the reason her relatedness index is 7.00. DeDe's opinion of physical activity has completely come full circle. When reflecting on her attitude toward physical activity participation prior to this experience, she reported "dreading it every day...I always found an excuse not to go" and "doing it until I just got bored with it...and quit." Now she puts "100% into the workout" crediting the "complete change in motivation not just to go exercise...but you're going to socialize and keep up with your girlfriends." The strong bond among the members extends from the class "we complain together and holler at the instructor together" to their free time "so close that once a month we get together and um do lunch and a movie." The motivation "to try to achieve what they have" and "more thoroughly"

working out “with a group than” on her own has DeDe continuing to attend the class, doing a modified routine on the stationary bicycle, so she “can at least still be with them while they’re doing it (the boot camp class).”

Linda’s perceived satisfaction of the need for autonomy index was 5.83. She explained that she felt very free to choose the physical activities in which she participates, and that she has a say in the activity she will do. On the other hand she does not “feel in control because I’m not exercising the control. I am free to do that but it’s making myself do that.” The lack of structure in her personal life allows extraneous obstacles like the weather (“it’s too hot, it’s too cold it’s, you know, too pretty, it’s rainy) and other distractions (“I go and start working on the computer or you know then I have to do this and I have to do that and, oh, I’ll exercise later”) to overwhelm and frustrate her, preventing her from being physical active. On the other hand, Linda’s perceived satisfaction of the need for relatedness is 6.67, indicating that feeling a meaningful connectedness with others was very important to her physical activity behavior. “I think it plays a big part” she said of exercising with others and how it affects her behavior, mentioning that having “a schedule and sticking to it” goes hand in hand with physical activity partnerships. The physical activity that she does consistently, occurring twice per week, was volunteering with a physical therapist who has worked with Linda for nine years since Linda’s hip replacement surgery. Knowing that she is expected to help with other clients keeps Linda in her activity routine.

Holly’s autonomy index of 6.00 is indicative of her feelings towards physical activity. She viewed herself as a “planner” so her life revolved around “first things first.” The structure of having a set routine enabled her to fit activity into her daily schedule. When she had a class or a 5k run scheduled “I feel I can figure something out you know to what I’m trying to do.” The

exercise log Holly completed reflects her statement “I’m a . . . it seems I’m an on and off seasonal physical activity person.” With the lack of structure of the summer and kids being out of school, physical activity was less of a priority even though she did not “plan intentional activity because I find I kind a automatically do more with the kids” which when reviewing the log, was not the case.

Although her relatedness index is 5.17, Holly described herself “kinda a loner.” On the other hand she hated “weights because it’s by yourself. I hate it. I don’t like the by yourself part.” Her reflections about physical activity included statements sighting enjoying the camaraderie associated with “knowing friends would be there. It makes me more excited about doing it.” She said she did “not look forward to it (physical activity) most of the time” not liking it “unless it’s something like a sport.” Having the structured rules and regulations, start and end time, and winners and losers provided the motivational framework for her as she explained, “the competition and the score and the goal to win and playing together and that it’s fun.”

Faye explained that “it’s more fun doing it (running) with someone else” indicating that companions and a structured commitment made an already enjoyable activity more appealing. Having a trainer, someone expecting your presence, made her accountable:

I had an appointment and I went faithfully twice a week. I don’t have a trainer anymore and I haven’t been back since so it’s really, it’s a big thing with me to have that commitment to do with someone else that you can’t blow it off as easily.

She suggested that feeling of connectedness and structure could help overcome her perceived lack of competence in being able to complete a marathon. She further explained:

If there was a huge group of us doing it...or ...training like I did do some training...when Davie did hers I did training with her and I mean it was fine. It wasn't bad...but, I don't know if I would do it by myself.

Regulation of Motivation

Analysis of the interviews revealed that participants' motivation to take part in physical activity can be classified into higher order themes based on the self-determination continuum. They tended to be classified toward the lower, less-self-determined end of the continuum, or the middle range of external regulation moving from more externally controlled introjected regulation to more internalized identified regulation. In this study Faye described her motivation for being physically active as enjoyment, displaying the highest degree of self-determined regulation, intrinsic motivation, and her perspective is presented as a negative case. The two themes that emerged when participants were asked why they did physical activity were guilt and health.

Guilt. A sense of guilt or obligation permeated participants' comments as they described their motivation to initiate and follow through with their physical activity behavior. This falls into the level of introjected regulation on the SDT continuum (Ryan & Deci, 2007), where individuals engage in a behavior or activity because they feel they "ought" to, or out of some level of guilt, coercion, or obligation. Linda reported that "everybody should do physical activity" and that she did not "do as much (physical activity) as I need to." Regrettably she shared "unfortunately, it's more of a do as I say not as I do thing." Throughout the interview her responses indicated that for her, physical activity was something to be done to avoid shame or guilt. Her motivation to be physically active is externally regulated stemming from not wanting to see herself "sitting in a Lazy Boy with the remote," something to be avoided.

Examination of Linda's activity log demonstrates this. Twelve of the fourteen hours of activity for that week were spent doing activity that "should" or "needs" to be done. Her physical activities were noted in the log as: "Spring house cleaning" and "yard work to clean up the grounds after a storm." When asked if in a typical week any other activities would be added to the log that were missing, Linda responded "maybe grocery shopping" when she "goes up and down every single aisle as fast as I can go with the buggy."

Extrinsic motivation was important in actually getting Candy to initiate her physical activity routine at her fitness club. Although she had taken the step to become a member of the club three weeks prior to the interview, Candy decided she had put off actually going long enough when she "realized I'm paying for it and if... I either use it or I quit." Her guilt or feeling of obligation stemmed from wanting to avoid wasting money.

A feeling of guilt and obligation also factored into DeDe's continued participation in a very rigorous workout class. Two and a half years ago when she started her current exercise program what kept her going for that first month to a class she felt was "one of the hardest things I ever had to do" was "it was very expensive at first." She reasoned "I cannot miss 'cause I mean I've spent all this money and I've got to get my money." In the initial critical phase of her behavior change to increase physical activity this external motivation of avoiding wasting money kept DeDe returning.

Although Holly was active in competitive sports throughout her early life, she became gradually more sedentary as she graduated from college, got married, and had children. She decided to add in physical activity after joining Weight Watchers "because they said. They said so," adding that "the studies show so much about you know activity being part of the (daily)

regimen.” Holly reincorporated activity to avoid feelings of guilt that she was not following her leader’s advice and the program rules.

Health. Better health as motivation for doing physical activity was a reoccurring theme across all of the interviews. This level of motivation is classified as identified regulation (Ryan & Deci, 2007) characterized as the threshold of autonomy, where individuals move from doing something because they “should” to engaging in the activity because they want to. The outcome of better health is an outcome they value, so at this level individuals begin to participate in physical activity because they want to achieve that outcome. Linda “stays active to protect my bones and joints” and says physical activity “helps you with your weight loss or maintenance.”

Faye also described doing physical activity at the level of identified regulation for reasons of health benefits “to keep my body limber,” “to keep in shape,” “strength,” “more stamina,” keeps “brain a lot more sharp,” “keeping my weight down,” and exercise “really does help, you know, with sleeping.” Also she was physically active to help improve her body image so she can “look nice in my clothes” and “look younger.”

Candy viewed physical activity as a means to become “heart healthy and body healthy so I would have quality of life.” Her recent switch from seeing activity more as a means to be “more toned,” “more energetic” and “get her cardio better” rather than a weight management tool was one reason she had joined the fitness club.

When asked why she was physically active Holly explained that when she was looking for answers for “what to do for cancer, for diabetes, for high blood pressure activity...exercise is on every list.” Primarily she wants “to stay active and be a great Mom.” This she equated with wanting “more energy,” “being physically strong,” “feeling more alert in the morning,” and

having “my body to work right.” More succinctly “wanting to stay as healthy as I can as long as I can with what’s in my control.”

DeDe’s reasons for being active generally mirror those of the other interviewees. She was physically active “mainly just (to) keep my health up and try to keep my weight under control” “gaining heart health” and being able to “pretty much eat what I want to eat and ... maintain that weight.” However, in certain structured environments, DeDe appeared to be on the brink of intrinsic motivation as she mentioned that she continues to participate in the boot camp class because “it’s a real fun workout.”

Negative Case – Faye

When asked about the attitude she has held towards physical activity, Faye’s perspective was in contrast to the other participants with regard to her level of self-determination and self-regulation. She did not mention a sense of guilt or obligation as a factor in her decision to initiate and maintain involvement in physical activity. She indicated “exercise has always been a part of me.” Mainly Faye did physical activity because “It makes me happy. I mean I enjoy it.” She is intrinsically motivated. She ran, lifted weights, and followed P90X training because they were “enjoyable,” for the most part free from external reinforcement.

Faye’s main obstacle to being physically active was an injury. During the week prior to this interview she had reinjured her foot, prohibiting her from running, which was her preferred exercise. When asked what a typical exercise log would have looked like, she responded that before her injury she was running at least 3, sometimes 5, miles 4 times a week. On Sundays “just because it was a day off” she typically ran 7 miles. She also performed P90X training 3 times a week. Strangely, as the interview progressed she off-handedly mentioned she walked the

dogs daily and mowed the lawn. She “didn’t even think of that as activity” when asked why they were not recorded on the log, because, she explained, those are activities that need to be done.

DISCUSSION

It was the purpose of this study to examine the motivation and the physical activity behaviors of five Lifetime members of the weight loss program Weight Watchers. Perception of psychological need satisfaction, according to SDT, has a strong influence on initiating and more importantly, maintaining a behavior. The degree to which an individual feels their basic psychological needs of competence, autonomy, and relatedness are satisfied affects their level of motivation (Deci & Ryan, 2000). The focus of the interviews and analysis centered on factors that influenced the satisfaction of the psychological needs and how the participants' motivation to be physically active was situated on this SDT continuum. The participants' reported three main issues that were key influences on their need satisfaction related to physical activity behaviors: family, mind vs body, and structure. It was of interest to note that these factors influenced the perceived need satisfaction for multiple nutrients. Examination of the majority of the reasons the women were physically active revealed as a group they were not intrinsically motivated. Guilt surfaced as a strong catalyst during initial stages of first becoming active or when activity levels were not viewed as up to par. Health was universally voiced as the prime reason for active endeavors by all the participants. The discussion is structured around examining how the findings in this study provide unique insights into factors that enhance or constrain the satisfaction of the psychological needs and how, in turn, satisfaction of those needs facilitates progression to more self-determined levels of motivation.

Satisfaction of Psychological Needs

All of the participants were married, worked outside the home, and had family responsibilities; and not surprisingly, family came to the forefront as an influential factor of their physical activity behaviors. The cases presented demonstrate that family can serve as both a

facilitator and a hindrance for engaging in physical activity. Role perceptions and personal relationships such as mother, spouse, and child affected participants' need satisfaction in both positive and negative ways. Prior research examining physical activity has shown that family is a strong influence on participants' decisions to be physically active, with both detrimental and positive effects (Chang, Nitzke, Guilford, Adair, & Hazard, 2008; Johnson et al., 1990; Felton & Parsons, 1994; Timperio et al., 2008). In this study, both Holly and Linda saw their spouses as potential exercise partners and expressed regret that they were not more involved. They believed having a close partner in physical activity would help fulfill their need for relatedness. Holly said her husband would facilitate her exercise schedule; but for some reason she did not take him up on his offer to help. By not taking advantage of his support, she seemed to have more excuses for a low level of physical activity. Her husband's taking on a few family responsibilities could help create a more autonomy-supportive environment and enable Holly to be free to take initiative and be more active.

Faye and DeDe cited family responsibilities as getting in the way of being physically active, thereby reducing their perceived autonomy. Seeing the detrimental effects the lack of physical activity had on her parents, Candy joined a fitness club to prevent the same scenario from happening in her life. This phenomenon is in accord with other researchers who have reported that parents have strong influences on their children's health behaviors (Koehly & Loscalzo, 2009).

The connection between mind and body also emerged as an influential factor related to need satisfaction. When participants experienced a sense of disconnect between mind and body then competence, relatedness and autonomy were at risk. In contrast, when they felt a sense of mind-body connection, and were able to see themselves as being active people, all nutrients

were fostered. Perception of self is considered to be critical to behavioral change and can be used to explain why some people will change and others will not (Whaley, 2003). Citing research based on understanding feelings of competence in physical activity, Corbin (2002) asserts that an individuals' self-perception of their competence is as important as their actual ability. He concludes that an active identity corresponding with participation in physical activity long term is related to positive physical self-esteem. Perhaps by mentioning they felt less than confident in their abilities to perform in challenging physical active situations the women in this study were invoking a self-protective mechanism. In this way when, or if, they see their performance in a rigorous physical activity as less than optimal in their eyes, their self-image and competence can remain intact. These findings suggest that addressing issues of body image and ensuring that individuals can see themselves as physically active beings is one strategy to satisfy basic psychological needs.

Creation of social environments that provide need satisfaction and promote self-determined motivation has been reported to positively affect physical activity behaviors (Edmund, Ntoumanis, & Duda, 2006). Various forms of structure were mentioned by participants in this study that facilitated physical activity behavior. In all instances, structure was viewed as a positive factor that enhanced the participants' perceptions of fulfillment of all three psychological needs. The concept of having to be at a specific place at a particular time and being told what movements or routines to perform can be seen as externally controlling, but the structure provided by exercise classes or fitness clubs did not seem to interfere with a sense of autonomy. Perhaps making the choice to participate in a class or scheduled program was sufficient to maintain a sense of autonomy, and overall this seemed to contribute to increasing their perceived competence, autonomy, and relatedness.

In Candy's case, the fitness club's structured environment comprised of trainers, instructors, and other class members, as well a specific scheduled time to exercise served to enhance her workouts and promote autonomy, competence, and relatedness need satisfaction. In previous research, when physical education teachers created supportive experiences that enhanced students' psychological need satisfaction, students had higher levels of intrinsic motivation and improved physical activity behaviors (Ntoumanis, 2005; Standage et al., 2005; Standage et al., 2006; Zhang, Solmon, Kosma, Carson, & Gu, 2011). Combined cooperation and group effort have been shown to foster exercisers' feelings of competence (Murcia, de San Roman, Galindo, Alonso, & Gonzales-Cutre, 2008), so this could be an avenue to address Candy's strong perceived feelings of incompetency.

DeDe's structured exercise regime, which includes close ties to other boot camp participants, has increased her perceived competence and relatedness. The strong relatedness she felt with the other members, whom she now sees as friends, kept her returning daily. Cox and Williams (2008) suggested that social contextual factors perceived by physical education students in a teacher-provided mastery climate were most important for students' feelings of relatedness. Even extrinsically motivated behaviors are more likely to be internalized when an individual feels a sense of relatedness (Deci & Ryan, 2000). The highly intense class was led by an instructor who built her competence through focusing on self-improvement, challenging realistic tasks and difficult yet attainable goals. Edmunds et al. (2006) found that psychological need satisfaction derived from the exercise setting corresponded with more self-determined motivational regulation in students.

Linda's perceived lack of self-control resulting in unstructured daily routines may have lowered her perceived competence, causing her to be frustrated with her low levels of physical

activity. A twice weekly appointment with her physical therapist was her only consistent activity. Recently, Vlachopoulos et al. (2011) reported that, specifically in the gym setting, competence need fulfillment is key to exercise identity. Their findings were consistent with those of Ntoumanis et al. (2001) who reported that perceived competence had the largest effect on the different motivation types in the PE context. Similarly, in the present study, Holly, a planner, was not happy in an unstructured environment. The lack of routine during the summer had her putting physical activity at the bottom of a list, so she seldom got to it. She was consistently active when she had a class to attend.

Overall, Faye perceived her psychological needs as being fulfilled by her running experiences. She independently chose to run alone at times reflecting a high level of perceived autonomy, but she would not have started running if not for the encouragement from a friend. Her low level of perceived competence was overcome when she took advantage of the relationship she built with fellow runners. Having the additional structure of meeting a friend to run or an appointment with a trainer at the gym further helps internalize her motivation. Social interaction and feelings of connectedness have been reported previously as perceived benefits and predictors of physical activity (Chang et al., 2008; Felton & Parsons, 1994; Hall, 1998) and conversely lack of companionship was perceived as a barrier to physical activity (Dergence et al., 2003; Ebrahim & Rowland, 1996; Johnson et al., 1990).

Participants in the present study tended to magnify their shortcomings to create barriers that affected their perceptions of competence. Perceptions of old age and physical frailties are common barriers in older populations (Ebrahim & Rowland 1996; Grodesky, Kosma, & Solmon, 2006). They also, however, were able to work around the perceived obstacle of age or an old injury; Holly by doing the low impact version exercises, and Faye, DeDe, Linda, and

Candy by group support and training with friends. The findings from this study suggest that providing structure for physical activity can increase perceived autonomy, competence and relatedness and ultimately increase motivation to be physically active.

Moving Along the Continuum Toward Self-Determined Motivation

The reason an individual participates in an activity or behaves in a certain way under particular circumstances depends on how motivated they are at the time. The more the activity is perceived as an end in itself, to be engaged in for pleasure and fun, the greater chance an individual will persist and continue that behavior long term. When perceived external forces motivate activity engagement, participation is more likely to be short term or intermittent (Ryan & Deci, 2007). In the exercise domain, sometimes purely intrinsic motivation may not always be a realistic expectation. There are individuals who will never reach a level that they work out or run simply for the enjoyment of that activity. High levels of self-determination, as in identified and integrated regulation, however, reflect higher levels of self-regulation and are more likely to produce long-term behavior change than more external forms of motivation. When an individual values an activity, or engages in an activity as a means to achieve a valued outcome, such as improved health, then even though the motivation is not truly intrinsic, it becomes integrated into the sense of self it should support maintenance of the behavior (Wilson, Rodgers, Blanchard, & Gessell, 2003).

In this study, the participants mentioned guilt as a reason they initiated, and sometimes maintained, physical activity. Candy and DeDe decided to continue new workout programs based on guilty feelings about wasting expensive memberships; and Linda and Holly did some activity to avoid guilty feelings associated with being sedentary. Only Faye did not mention guilt as a motivator. Individuals functioning through this type of introjected regulation participate in

activities to avoid repercussions from within themselves or from external sources; consequently adherence to the activity is generally short lived or inconsistent at best.

Health was overwhelmingly cited as a reason to be physically active among all the women who participated in this study. Not unexpectedly, weight control was a catalyst to be physically active by all but one participant. Maintaining and improving health and fitness are at the level of identified regulation, or the threshold of autonomy. Physical activity was associated with a valued outcome, or a means to achieve an important goal. Even though this is considered to be a form of extrinsic motivation because the behavior itself is not seen as enjoyable, identified regulation has significantly predicted strenuous activity behavior in the exercise context (Edmunds et al., 2006) and has been associated with more frequent exercise behavior, positive attitudes toward exercise, and overall physical fitness (Wilson et al., 2003). Although ultimately it would be optimal for individuals to be physically active just for the pleasure of doing the activity itself, some activities, such as exercising, are not seen as inherently enjoyable. Good health as a motivator is more closely related to other intrinsic goals whereas weight loss and maintenance was viewed as a more extrinsic motivator (Ryan, Williams, Patrick, & Deci, 2009). In the present study, Candy mentioned that once she looked at being active as something to better her quality of life, instead of a weight loss tool, she was going to the gym regularly. Holly also mentioned that physical activity never worked for her towards her losing weight.

The findings yielded by qualitative approach demonstrated that among the participants there was a range across the self-regulated motivation continuum from externally motivated, primarily by guilt, to more internal motivation, chiefly expressed as performing the activity because of the value it held for the individual. The findings also show, however, how the satisfaction of the basic psychological needs can serve to propel individuals to high levels of

self-regulation and self-determined motivation. One participant DeDe mentioned that she started doing the boot camp class for the purely externally motivated reason of wanting to avoid feeling guilty for wasting money and has progressed to the point over two years later to being more intrinsically motivated.

All participants did some form of physical activity the week prior to being interviewed. Even Faye, who was recovering from an injury and left her activity log blank, verbally reported walking the dogs and mowing the lawn. Although the majority of her statements about why she exercised were based on the health benefits she perceived from being active, Faye was the only participant who indicated that she did exercise because she thought of it as a part of who she is. Candy mentioned it being “fun” to think of herself “as an active person,” an observation also reported by Lorentzen et al. (2007) who found it was important to increase people’s perception of themselves as physically active persons when attempting to increase motivational readiness for actual physical activity behavior. Holly and DeDe mentioned enjoying “fun” workout routines, but Faye alone said being active made her “happy” and she exercised for enjoyment. Although an individual’s externally motivated behavior can become more self-regulated through internalization as they see the value in it, long term participation is most evident when motivation is intrinsically-motivated (Deci & Ryan, 2000).

SDT contends that individuals will be more self-regulated to act in situations in which they perceive their needs for autonomy, competence, and relatedness to be satisfied. Additionally, Deci and Ryan (2000) contend that perceived relatedness is important for the development of self-determined motivation for tasks such as physical activity and exercise that are not intrinsically interesting. This seemed evident as perceived relatedness had a great effect on the participants’ motivation to be physically active. Feelings of being connected overcame the

incompetence felt by Candy when members of her Zumba class accepted her for who she was at her beginner ability level. The group support pushed her to workout longer and more intensely than she otherwise would have. Support of friends made Holly excited about doing an activity. She also reported feeling “bowed up” working harder and longer when she is working out with others. DeDe looked forward to an intense boot camp she enjoyed six days a week. Along with fellow class members she “complains” and “hollers” at the instructor. They “motivate each other” to successfully get through the challenging workout. The consistency and accountability working out with a friend brings is what Linda depends on to keep herself on track. Faye is very self-regulated to be physically active, but the added support of running with the neighborhood ladies makes an enjoyable workout “more fun.” A feeling of affiliation may give her the missing confidence to attempt a half marathon run.

SUMMARY AND CONCLUSIONS

Many people who recognize they are overweight or obese seek help from programs such as Weight Watchers. They are looking for direction and motivation to get them on track to feeling better and becoming healthier. The Weight Watchers PointsPlus program has included physical activity as one of four life style changes, but it still has not been sufficiently integrated into the program; and for many members becoming physically active is the last behavior change they make. Weight loss may be accomplished without adding activity into one's lifestyle, but it plays an important role in maintaining a healthy weight. According to SDT, an individual's behavior can be explained by the extent to which the three psychological needs of competence, autonomy, and relatedness are fulfilled. The purpose of this study was to use SDT as a theoretical framework for a qualitative investigation exploring motivation to be physically active as a part of healthy weight maintenance. The thoughts and feelings of the participants were used to examine their motivation and physical activity behaviors.

Five Caucasian female participants, 46–58 years of age, were selected using a criterion sampling strategy. Inclusion criteria were a) meeting the basic milestone of achieving Lifetime status in the Weight Watchers weight loss program, b) maintaining that status for a minimum of three years, and c) being employed by the program. Data were derived from the PNSE scale, the participants' self-reported exercise logs, and a SDT-based follow up directed interview by the investigator. In the naturalistic design of this research, need satisfaction emerged as an influence on the motivation for physical activity behaviors of the participants. Although perceptions of competence and autonomy were important factors in the women's physical activity choices, perceived relatedness appeared to be most closely associated with activity behaviors. All of the participants reported that their perception of lack of family support inhibited need satisfaction.

Other exercise companions, workout class instructors, and physical trainers combined to help create a structured exercise environment that increased the individuals' perceptions of need satisfaction. The participants also put self-imposed limitations on their abilities which affected their perceptions of need satisfaction. Further examination of the women's comments uncovered a wide range of self-determined motivation levels ranging from exercising to avoid guilt, an externally-regulated source of motivation, to wanting better health, an internally-regulated source of motivation. One participant did voice a totally intrinsically-motivated reason for being physically active, i.e., that it was part of her identity.

The results of this naturalistically-designed research add to the body of knowledge about factors that inhibit or encourage incorporating physical activity into daily life. The present study delved more deeply into the perceptions of its participants than previous studies have reported. The interview as a follow up to self-report questionnaires and written activity diary entries included probing, open ended questions. These questions were intended to elicit the participants' thoughts and feelings about physical activity and how they view exercise in their lives. This approach provided a more comprehensive view of the role relatedness, and to a lesser degree, autonomy and competence, played in motivating physical activity in this group.

Analysis of the data revealed that participants reported varying levels of self-determination in the motivation to be physically active. Four of the five participants reported that their motivation at least in part was at the level of introjected regulation, or out of a sense of guilt or obligation. SDT predicts that this level of motivation alone is unlikely to sustain engagement in a behavior, but all of the participants made statements that indicated they also engaged in physical activity to foster better health and quality of life. This is a more self-determined level of motivation and more likely to sustain a target behavior. One important finding from this study is

that although introjected regulation may play a role in maintaining a behavior, in these cases it was accompanied, or perhaps offset, by also valuing an outcome associated with being physically active. Only one of the five women actually was physically active, at least in part, because she found participation enjoyable and saw herself as someone who was physically active.

Drawing on the participants' comments, weight loss programs may find it valuable to consider the effect psychological need supportive environments have on behavior change. The Weight Watchers program should ensure their employees understand the value of physical activity and that it is integrated into their routines and program materials. Changing the way physical activity is introduced, making it something more than an extrinsically motivated way to eat more food, may provide a good start to the internalization process to initiate and sustain involvement in physical activity. Instructors are likely to have a hard time helping members to realize the value of more activity if they themselves are solely extrinsically motivated. It is of interest to note that the mention of the Weight Watchers program in motivation to be active is virtually absent. By and large participants mentioned influences unrelated to Weight Watchers in their motives and as factors meeting psychological needs. This suggests that the program could enhance successful weight loss maintenance by incorporating physical activity in a manner that members perceive as fulfilling their needs for competence, autonomy, and relatedness.

Weight Watcher group members should be given the opportunity to be active. Members are instructed to delve further on the program's website for additional physical activity ideas, but the majority of them are present in the meeting room because they need more structure and support to help fulfill their psychological needs, something that is missing on a website or in a pamphlet. In order to succeed in the twin goals of maintaining weight loss and leading healthier

lifestyles, members need to internalize the idea that physical activity is possible without having to follow a specific set of rules; that there is not a right or wrong way. Individuals who were less gifted in physical education and sports often become disenchanted with the physical education experience (Corbin, 2002). Being active is not about winning or losing; it is about the thoughts and emotions experienced while being active; these have been shown more important in determining subsequent engagement in physical activity. The opportunity for members to work in teams, to increase their perceived feelings of relatedness, may prove to support feelings of “we’re all in this together” outside the meeting room.

Program leaders do a disservice to their members if they do not promote physical activity behaviors as equal partners with weight loss in modeling healthier lifestyles. Experience, rather than outcome, sustains individuals’ activity enjoyment (MacPhail, Gorely, Kirk, & Kinchin, 2008). Ultimately, by creating an environment that leads members to perceive that their psychological needs of competence, autonomy, and relatedness are being satisfied, the program may maximize their members’ enjoyment. When physical activity is viewed as enjoyable, which has proven to be a strong predictor of commitment, an individual’s behavior motivations may become more internalized and integrated into a part of how members see themselves. The more physical activity is intrinsically motivated, the greater are the chances it will be maintained over time (Hagger & Chatzisarantis, 2007), which in turn increases the chance that weight loss will be maintained.

Research in the future should include longitudinal examination of the effects psychological need supportive environments have on weight loss program members’ permanently adopting physically active lifestyles. Research exploring the changes in the Lifetime members’ behaviors that may occur over time, as well as an examination of how these changes

affect other members, would yield valuable information regarding perceptions of needs fulfillment and motivation towards physical activity.

Future research should also incorporate a wider range of ethnicities and nationalities, investigating any role that these factors may play in their perceptions of needs fulfillment. A limitation of this study is that all participants were White. All races are being adversely affected by sedentary lifestyles; the way one race views a situation may vary from the perspective of another. A person's background, his or her values, and family influences are significant when considering need satisfaction, internalizing beliefs, and intrinsic motivation.

Another limitation of the present study is that information about the amount of weight participants had lost was not available to the researcher. Weight Watchers does not emphasize the quantity of loss, only maintaining a goal weight. Information about individual histories with regard to attaining a healthy weight might provide valuable insight. Additionally, a researcher further removed from the Weight Watchers program would see the program from a completely different point of view. This would eliminate the bias that goes along with being part of the program that the current researcher holds and add new perspectives on how Weight Watchers should approach the topic of physical activity in the future.

Not only other races should be examined but other age groups and men should be included as well. This research was limited to middle aged women. A more diverse study including a greater number of participants may increase the external validity of these qualitative measurements.

More qualitatively designed research is warranted to increase weight loss program leaders' knowledge of the strategies to increase individuals' self-determined motivation to be physically active. Although the intimate relationship the researcher had with the participants and

the program allowed special and valuable insight, interviews and observations done by others not as closely associated with the program could provide another valuable perspective and yield information vital to this line of research.

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APPENDIX: QUESTIONNAIRES

Physical Activity Readiness Questionnaire (PAR-Q)

For most people, physical activity should not pose any problem or hazard. This questionnaire has been designed to identify the small number of adults for whom physical activity might be inappropriate or those who should have medical advice concerning the suitable type of activity.

- | | | |
|--|-----|----|
| 1. Has your doctor ever said you have heart trouble? | Yes | No |
| 2. Do you frequently suffer from chest pains? | Yes | No |
| 3. Do you often feel faint or have spells of severe dizziness? | Yes | No |
| 4. Has a doctor ever said your blood pressure was too high? | Yes | No |
| 5. Has a doctor ever told you that you have a bone or joint problem such as arthritis that has been aggravated by, or might be made worse with exercise? | Yes | No |
| 6. Is there any other good physical reason why you should not follow an activity program even if you want to? | Yes | No |
| 7. Are you 65 and not accustomed to vigorous exercise? | Yes | No |

If you answer “yes” to any question, vigorous exercise or exercise testing should be postponed. Medical clearance may be necessary.

I have read this questionnaire. I understand it does not provide a medical assessment in lieu of a physical examination by a physician.

Participant’s signature.....Date.....
Investigator’s signature.....Date.....

Adapted from PAR-Q Validation Report, British Columbia Department of Health, June, 1975.
Reference: Hafen, B.Q. & Hoeger, W.W.K. (1994). *Wellness: Guidelines for a Healthy Lifestyle*.
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Motivation Questionnaire

Years as weight loss program member _____ Years at Lifetime ____ Age _____ M or F

Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond:

1 2 3 4 5 6 7
Not at all true somewhat true very true

1. I feel that I am able to complete physical activity that is personally challenging. ___
2. I feel free to do physical activity in my own way. ___
3. I feel attached to my physical activity companions because they accept me for who I am. ___
4. I feel free to make my own physical activity program decisions. ___
5. I feel confident I can do even the most challenging physical activities. ___
6. I feel confident in my ability to perform physical activity that personally challenges me. ___
7. I feel I share a common bond with people who are important to me when we do physical activity together. ___
8. I feel capable of completing physical activities that are challenging to me. ___
9. I feel a sense of camaraderie with my physical activity companions because we do physical activity for the same reasons. ___
10. I feel like I am in charge of my physical activity program decisions. ___
11. I feel like I have a say in choosing the physical activity that I do. ___
12. I feel like I am capable of doing even the most challenging physical activities. ___
13. I feel close to my physical activity companions who appreciate how difficult exercise can be. ___
14. I feel free to choose which physical activity I participate in. ___
15. I feel connected to the people who I interact with while we do physical activity together. ___

16. I feel like I get along well with other people who I interact with while we do physical activity together. ___

17. I feel good about the way I am able to complete challenging physical activities. ___

18. I feel like I am the one who decides what physical activity I do. ___

Interview Protocol

1-What are your reasons for doing physical activity?

2-How important is physical activity as a part of your daily life? Why?
Where does it rank as a priority?

3-You've made plans to be physically active. What would cause you to change those plans?
How do you feel about having to change your plans?
How would you make up for missing out on your planned physical activity?

In looking over your answers to the motivational questionnaire, I have a few follow up questions.

4-How does knowing that you will be exercising with others affect whether you exercise or not?
How does exercising alone make you feel?
Who do you usually work out with (friend, family, team)?
What effect does having an exercise partner have on your workout? (longer, harder)

5-It looks like you (do, do not) feel competent in accomplishing physical activity. Please expand on this?

What is the reason you feel this way?
What effects does this have on your being physical active?
What effect does this have on your physical activity choices?

6-Your answers indicate you (do, do not), feel you have control over your physical activity choices and schedule.

Could you expand on this?
What are the reasons you feel this way?
How do you feel this affects your being pa?
What effect does this have on your pa choices you make?

7-How would you say the exercise log that you completed compares with your typical physical activity routine?

If different - What would you say the reason for this difference is?
What are the differences?
What does a more typical week physical activity look like?

The next few questions are on the topic of physical activity and how you feel about it in connection with weight loss and weight goal maintenance.

8-What does physical activity mean to you?

9-How did you feel about physical activity before your weight loss?

How did you feel about physical activity during your weight loss process?

How have your feelings about PA changed over the course of your weight loss and maintenance process?

What do you think caused the change in your feelings?

10-What is your reaction as a leader when physical activity is the weekly weight watchers meeting topic?

What effect does this have on your meeting energy that week?

What effect do you think this has on the members?

11-What role does physical activity play in maintaining your life time status?

12-That completes the questions I have for you. Is there anything you'd like to add that I have overlooked?

Potential question for individuals with positive views about PA:

What strategies would you recommend to try and convince someone who is reluctant to incorporate PA in to their weight loss program?

Physical Activity Log

Date	What physical activity you did?	For how long?	intensity: not breathing hard, breathing hard, sweating	Were you alone, friend, family, group, team	What inspired you to be physically active?	How you felt after being physically active?

VITA

Ellen was born and raised in Sanford, Maine. She attended the University of Maine at Orono where she received her Associates degree in Animal Medical Technology in 1979. She was able to further pursue her interests in biology and animal science with a semester rotation at the Animal Medical Center in New York City. After graduation, she worked with a private veterinarian in Gorham, New Hampshire, and then at a firm in Westbrook, Maine. She married her husband of now thirty years and moved to Cambridge, Massachusetts, where she managed a toxicology research lab at the Massachusetts Institute of Technology. She continued pursuing her toxicology interests at Texas A&M University. Ellen and her family, which now included a son, then moved to Louisiana State University, where she completed a bachelor's degree in zoology in 1993. During this time she continued to work as a research embryologist.

After the birth of her second son in 1993, Ellen stayed at home with her young children for a year and then took a position managing a small real estate practice; she obtained her real estate license in 1996. Ellen then realized that in addition to marriage, two children, education, and professional experience, she had gained 50 pounds. She joined Weight Watchers and successfully lost 60 pounds in 1999. Based on this success, that year she joined the Weight Watchers staff as a receptionist and a group leader and continues to work for the program on a part-time basis. In 1999, she also started working full time at the LSU Division of Engineering Services; and Ellen moved in 2009 into her current position as business manager of the LSU DOE Energy Frontier Research Center.

Ellen's interests in the Weight Watchers Program led her to enroll in the LSU master's program in kinesiology in 2009. Her long term professional goal is to help motivate individuals to start being physically active before they need to join a weight loss program.