

VYTAUTAS MAGNUS UNIVERSITY

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**IMPORTANCE OF ADLERIAN LIFESTYLE THEMES IN  
WOMEN'S WEIGHT MANAGEMENT PROCESS**

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MOTERŲ SVORIO VALDYMUI**

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my daughter Marija.*

## **ABBREVIATIONS**

BMI - Body Mass Index

IP - Individual Psychology

TPB - Theory of Planned Behaviour

HBM - The Health Belief Model

SCT - Social Cognitive Theory

BASIS-A - Basic Adlerian Scales for Interpersonal Success - Adults' version

BSI - Belonging-Social Interest

GA - Going Along

TC - Taking Charge

WR - Wanting Recognition

BC - Being Cautious

H - Harshness

E - Entitlement

L - Liked by All

P - Striving for Perfection

S - Softness

UPE - Unconditional Permission to Eat

EPR - Eating for Physical Rather than Emotional Reasons

RHSC - Reliance on Hunger and Satiety Cues

B-FCC - Body-Food Choice Congruence



## GLOSSARY

*Adlerian Lifestyle* is goal directed personality attributes that integrates social goals of the perceived environment and to a lesser degree the emphasis on an individual's biological and genetic attributes (Adler, 1927; Ansbacher & Ansbacher, 1964). Lifestyle is conceptualized as an organized set of beliefs that an individual creates before the age of seven within the confines of the family that the individual consistently employs throughout life to solve problems related to social relationships, career, and intimacy (Jonyniene & Kern, 2012). In this study Lifestyle will be used as a synonym for what other scholars would refer to as personality.

*Weight management process* is described following the ideas by Sapp (2002) who generalized the social cognitive models with the statement that beliefs (knowledge) cause affect (attitudes), which causes conation (intention), which causes behaviour. In this study weight management process is understood as a relation between reported weights, perception of weight situation, intention to manage weight, and weight management behaviours which brings the presence of certain weight.

*Perceived weight situation/ perceived weight* in this study represent the individual's attitude towards his/her weight situation (from perceiving oneself as very underweight to as very overweight (Cash, 2000)). Number of synonyms to the perceived weight situation can be found in the research field, e.g. subjective weight evaluation, self-classified weight, evaluation of weight-related situation, subjective weight situation.

*Active intention to manage weight* refers to one of the following categories (1) actively doing things to gain weight at the moment; (2) actively doing things to try to avoid gaining weight at the moment; (3) actively doing things to try to lose weight at the moment; or (4) not doing anything in particular for my weight at the moment (Jeffery et. al, 2013).

*Weight management behaviours* in this study refer to the level of healthy eating (consumption of healthy meal, according to the methodological guidelines (Astrauskienė et al., 2011), good eating habits (avoiding fast-food, overeating, eating late nights or by TV/computer), physical activity including strenuous, moderate and mild exercise during the last week (Godin & Shephard, 1985, 1997) and weight controlling behaviour which includes strict dieting, taking meal substitutes or weight control supplements, fasting etc.

*Intuitive Eating* can be described as an alternative to a diet approach to weight management which encourage people to eat what they desire and follow their internal signals of hunger and satiety (Tribole & Resch, 1995; Tylka, 2006, Avalos & Tylka, 2006, Augustus-Horvath, 2008, Tylka & van Diest, 2013). Four components of the Intuitive eating are as follow: unconditional permission to eat when hungry and what food is desired, eating for physical rather

than emotional reasons, reliance on internal hunger and satiety cues to determine when and how much to eat, and, finally choosing to eat food which is good for your body (Polivy & Herman, 1987, 1992; Tribole & Resch, 1995, Fedoroff, Polivy, & Herman, 1997; Carper, Fisher, & Birch, 2000; Tylka, 2006; Tylka & van Diest, 2013).

*Concern with the appearance* – is a cognitive component of the body image which indicates individual's certain beliefs or assumptions about the importance, meaning, and influences of appearance in his/her life (Cash, 2003).

*Motivation towards appearance* is a cognitive component of the body image which indicates the attendance in appearance management behaviours (Cash, 2003).

*Perceived social support* refer to the individual perception about the level of support one get from three sources: family, friends and significant others (Zimet, Dahlem, Zimet, Farley, 1988).

## INTRODUCTION

There are 1.1 billion overweight people and almost 500 million (9.8%) are obese (World Health Organization, WHO, 2014). This situation is described as *Global obesity (or Globesity)*. During the last 20 years the number of obese people in the world has doubled. The statistics from the Europe Union indicate approximately 21 to 37 percent of the women population are overweight, and 7 to 36 percent are obese. For men the numbers range from 35 to 54 percent of overweight and from 6 to 29 percent of obese ones. The highest numbers are reported in Greece and Cyprus with overweight and obesity numbers being reported for 73 percent of Greek women and 83 percent of men in Cyprus (WHO, 2014). The situations in other European countries are much different as reflected by 10 percent obesity in Romania and 20 percent in United Kingdom, Ireland and Malta. However, the obesity rate in Netherlands and Great Britain has doubled during the past twenty years (WHO, 2014). This has led to increased spending by many countries on health related issues. It is estimated that six percent of Health security money has been spend for Obesity caused health problems and lose of money by organizations due these issues. Prior applied preventive efforts appear to have little impact on the epidemic issue (Abalikšta, 2011).

Lithuanians may assume that obesity is a problem for other countries and that they are immune to the weight induced health problems. However, according the reports (World Health Organization, 2013), Lithuania ranks fifth in the European Union related to numbers of obese people, listed as one of the top ten countries in relation to highest numbers of overweight people in Europe and a ranking of eighth when compared to all countries in the world. Overweight and obesity is a problem among adults as well as children and adolescents. This is reflected by the Department of Public Health in Vilnius report that numbers of obese children and adolescents has doubled from 2001 to 2008.

Overweight and obesity has become one of the major reasons causing health problems in the world. It is well known that overweight and obesity might cause diabetes, heart diseases, mood disorders, high blood pressure, strokes and many others physiological and also psychological diseases (Colditz, Willett, Rotnitzky, & Manson, 1995; Koh-Banerjee, Wang, Hu, Spiegelman, Willett, & Rimm, 2004; Guh, Zhang, Bansback, Amarsi, Birmingham, & Anis, 2009; Rocha, & Libby, 2009). Various studies found that the risk of Coronary Heart Disease increases in a range from 17 to 32 percent for overweight people and from 49 to 81 percent increases for the individuals that are obese. The risk of type 2 Diabetes for overweight women increases four times and 93 times if a woman has a body mass index of 35 or higher as

compared to those whose body mass index is 22 and lower. Finally, overweight increased the risk of ischemic stroke by 22 percent and obesity by 64 percent (Colditz et al., 1995, "Health effects", 2014). Moreover, there is strong evidence that obesity is related to the life expectancy. If, for example if your BMI is 45 or higher in your twenty and thirties the life expectancy decreases by thirteen years for men and eight years for women (Guh et al., 2009). The risk to die early from coronary artery disease was found to be 62 percent greater in women with BMIs of 30 or higher in compare with women who had normal BMI ("Health effects", 2014).

Moreover, overweight and obesity has financial consequences. First, increased weight may affect the individual's income due to the consequences related to physical and psychological health issue (Cawley, 2004; Lawreiro & Nayga, 2005). Second, from an organization perspective money may be lost due to lower efficacy of obese employees (Finkelstein et al., 2010). Third, governments challenged to provide increased levels of spending to combat the health issues related to overweight and obesity of their citizens (Sanchez, 2004; Wilkinson, 2006). For example about 30 million Litas of Government health insurance money was spend for gastric bypass surgery for weight loss in Lithuania in 2013 (Urbonaitė-Vainienė, 2013).

**Scientific Relevance of the Present Study.** To address this growing health issue researcher worldwide have increased their interest in this problem. The overweight and obesity issue has been researched related to the negative psychological and physical impact of the phenomena (Colditz, Willett, Rotnitzky, & Manson, 1995; Koh-Banerjee, Wang, Hu, Spiegelman, Willett, & Rimm, 2004; Guh, Zhang, Bansback, Amarsi, Birmingham, & Anis, 2009; Rocha, & Libby, 2009), attitudinal, intentional, behavioural and biopsychosocial correlates (Britzman & Main, 1990, Baum & Posluszny, 1999; Jeffery & French, 1999; Savaiano-Brady, 2001; Teixeira et al., 2005; Van Diest, 2007; Kakizaki et al., 2008; Thompson et al., 2008; Terracciano et al., 2009; Hilbert et al., 2009; Stubbs et al., 2011).

A number of studies based on social cognitive models (Armitage & Conner, 2001; Glanz, Rimer, Viswanath, 2008; Knabe, 2012) and interventions ranging from motivational interviewing, group-based weight-control treatment programs, advise by primary care providers, diet plans proposed in numerous books and suggestions by nutritional experts have been used to address the problem (Armstrong et al., 2011; Jelalian, Sato, & Hart, 2011; Rose, Poynter, Anderson, Noar, & Conigliaro, 2013). However, the researcher proposes that these studies lack a holistic approach and a comprehensive theoretical model that provide a systematic model for future interventions with individuals with weight issues. The present study will attempt to

expand on previous studies finding by including a comprehensive theoretical and holistic model based on the principles of Individual Psychology (IP), a social cognitive approach, and biopsychosocial variables extracted from other studies to explore the weight management process.

It was proposed in this study that a void of a comprehensive theory inhibits practitioners and researchers from using the findings to address motivational issues and other personality dynamics that are so critical to individuals to succeed in the behaviour change process. A lack of theory also inhibits other researchers in the future to build on the findings of studies completed previously. An example of practical implementation of the results related to weight control and IP could be the research by Stoltz and his colleagues (2009) who explored the personality attributes related to lifestyle dynamics of the individual could enhance the practitioners understanding of the most effective interventions to address weight issues of clients. For example one of the findings suggested that weight loss interventions that encourage social interactions in small group setting, attend lectures concerning weight issues and the increase their social support system by the client may enhance the individuals' ability to manage their weight more effectively.

More specifically, the present study was designed to investigate lifestyle dynamics referred to as personality in other theoretical models and various other biopsychosocial factors that might interfere in successful weight management. To enhance the understanding of individual lifestyle dynamics the researcher has integrated a social cognitive model described by Sapp (2002) who generalized the social cognitive models with the statement that beliefs (knowledge) cause affect (attitudes), which causes conation (intention), which causes behaviour. These three statements are complimentary to what Adler referred to of attributes that describe the development of lifestyle of perceptions, beliefs, private logic and purposefulness of behaviour. In this study these statements were expanded with claiming that individual may make three mistakes related to the weight managing process which are: (1) incorrect perception of weight (attitudes are not based on reality: when individual does not perceive his/her weight situation correctly); (2) incongruence between perceived weight situation and the active intention to manage it (intention is not based on attitudes: when individual perceives his/her situation as being overweight but has no active intention to manage weight); (3) when healthy behaviour do not correspond to the intention to manage weight (behaviour is not helpful for the intention: when individual reports being actively involved in weight management, yet does not eat healthy, has not good eating habits, is not physically active). These ideas are complimentary

to what Adler referred to of attributes that describe the development of lifestyle of perceptions, beliefs, private logic and purposefulness of behaviour.

To embellish the weight management process the researcher also explored the benefits of a more current model of explaining weight issues of Intuitive Eating. Tylka (2006) stated that eating behaviour research in the past has been mostly pathology-focused. Moreover, some authors analysed the addiction to healthy eating as an eating disorder and called this type of behaviour orthorexia nervosa (Bratman, 1997; Mathieu, 2005; Brytek-Matera, 2012; Varga, Dukay-Szabó, Túry, & van Furth, 2013, 2014; Koven & Abry, 2015). The need to investigate the long-term lifestyle change process from the perspective of the attitudes to the behaviour and psychological approach has been emphasized (Tylka, 2006). Therefore, beside the traditional weight management strategy that usual include healthy eating and physical activity, there are other approaches, such as Intuitive eating that is more related to the personality attributes than traditional weight management behaviours. Intuitive eating is compatible with the ideas of IP in relation to the holistic approach to the person.

**Scientific Novelty of the Present Study.** The present study is novel for several reasons. First of all it includes theory-based attributes of personality dynamics and ideas of Individual Psychology in the weight related research. Although some personality attributes or themes (lifestyle) based on Individual Psychology have been researched in relation to weight issue (Britzman & Main, 1990, Savaiano-Brady, 2001, Belangee et al., 2003, Stoltz et al, 2009), this will be the first time these ideas will be used in the complex analysis that include other biopsychosocial factors such as body mass index, age, parents' weight situation, being concerned with the appearance or motivated to take care of one's appearance, perceived social support, marital status and income. Moreover these attributes and themes will be employed to assess the impact or moderating effects of Adlerian themes in the weight management process.

Second, the present study will integrate the Social Cognition Models, Individual Psychology and the constructs of Intuitive eating to enhance understanding of the weight management process. Social Cognition Models have been criticized because of the very specific behaviour that can be measured and that some of the other variables such as personality have not been included (Ajzen & Fishbein, 1980). Ideas of Individual Psychology have not been investigated in the complex analysis in relation to weight issue and, finally, approach of Intuitive eating has contradictory findings in relation to weight outcomes and does not have scientific evidence in Lithuania. Exploring a number of theoretical assumptions and integrating several approaches in this research might provide researchers about possibility to integrate the

present situational variables and past childhood experience (which formed the Adlerian lifestyle) trying to explain the weight management process. The results might provide the public with new insights about the weight issue.

Third, though some scientists emphasize the need to explain the mechanisms linking personality and weight issues (Stubbs et al., 2011), most research in relation to personality and weight-related behaviour have focused on the eating disorders rather than adaptive eating strategies (Fairburn, Welch, Doll, Davies, & O'Connor, 1997; Fairburn, Cooper, Doll, & Welch, 1999; Fairburn, Doll, Welch, Hay, Davies, & O'Connor, 1998; Leon, Fulkerson, Perry, Keel, & Klump, 1999; Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999; Tylka, Waldron, Graber, & Brooks-Gunn, 2002). This study will focus on the healthy eating behaviour and physical activity as well as the ideas of Intuitive Eating.

Finally, this study is novel in that it will include and explore the value of two new instruments related to weight issues in the Lithuanian population. It will be the first weight-related research that has used the Basic Adlerian Scales for Interpersonal Success-Adult Form normed on a Lithuanian sample to assess lifestyle. The second instrument that will be employed for the first time is the Intuitive Eating instrument (IES-2) that has been used and researched in other countries but not in Lithuania (Gast & Hawks, 2000; Caldwell, Baime, & Wolever, 2012; Outland, Madanat, & Rust, 2013; Tylka & van Diest, 2013). The results of this study will support scholars with the insights about the constructs of Adlerian lifestyle and Intuitive eating in Lithuanian sample.

**Practical Relevance of the Present Study.** The need to explain the weight management process from a psychological perspective is critical from a practical perspective. Regardless all the efforts related to medical interventions, diets, or treatment programs have as yet not yielded adequate answers to the obesity and overweight issues. Furthermore, inappropriate tries to solve the overweight issue such as severe dieting may lead to negative physiological and psychological outcomes such as eating disorders or depression (Stice & Agras, 1998; Stice, 2002; Vander Wal, Gibbons, & Pilar Grazioso, 2008; Rawana, 2013). There is some common behaviour for successful weight loss maintenance including low fat diet, self-monitoring of weight and food intake and physical activity (Wing & Hill, 2001), however, some authors state that paying too much attention to healthy eating might be addictive and lead to negative outcomes too (Bratman, 1997; Mathieu, 2005; Brytek-Matera, 2012; Varga, Dukay-Szabó, Túry, & van Furth, 2013, 2014; Koven & Abry, 2015).

As of this date there is translated book to Lithuanian language of the main ideas and suggestions for one who wants to learn and employ the ideas of Intuitive eating as well as organized courses, seminars or consultations. Although there are number of studies that revealed the ideas of Intuitive Eating (Gast & Hawks, 2000; Caldwell, Baime, & Wolever, 2012; Outland, Madanat, & Rust, 2013; Tylka & van Diest, 2013) as effective, there are some contradicting findings too (Van Dyke & Drinkwater, 2013). Furthermore, there is no scientific evidence that support the benefit of application of these ideas in Lithuanian sample. There is a need for such an investigation due to behavioural and personality differences between Americans and Lithuanians (Gaubè, Kern, & Stoltz, 2015). This study may provide additional insights about the role of Intuitive eating in weight management process. These findings may help the lay person and professional who work with this person to choose a more effective way to deal with the weight issue and avoid the dieting behaviour which seems to be related to negative physiological and psychological outcomes (Stice & Agras, 1998, Stice, 2002).

Second, the present study will include Adlerian Lifestyle personality attributes or themes, based on the theory of Individual Psychology, that lead to the practical application of the results (e.g. research by Stoltz et al., 2009). The needs to develop more individual approaches that are sensitive to individual needs and differences have been recognized (Stubbs et al., 2011). Defining and explaining the role of certain theory based personality attributes will support practitioners with new ideas and guidelines for lectures, an individual or group consultations for people dealing with weigh issues.

Third, the holistic or comprehensive analysis that addresses a variety of biopsychosocial variables, personality variables and health based Social Cognitive models may provide a knowledge base for professional to implement more effective interventions with sample under investigation. Moreover this analysis might support individuals who struggle with weight issue with some new insights about their mistakes and possible ways to increase the effectiveness in relation to weight management.

Fourth, the study was designed to further confirm the reliability and validity of the Lithuanian version of the Basic Adlerian Scales for Interpersonal Success-Adult Form (BASIS-A<sup>LT</sup>) which was normed for this study by the researcher conducting the study. This will support practitioners and researchers with several valid instruments for practical application and future studies.

**Objectives of the Study.** The objective of the present research is the complex analysis of Adlerian Lifestyle themes as they relate to the weight management process based on Social



Cognitive approach and Intuitive Eating. Of equal importance was to provide professionals with a way of integrating lifestyle dynamics within the context of treatment related to weight issues of women.

The empirically based **purpose** of the present study was to identify the interrelatedness of Adlerian Lifestyle themes as potential risk and deterring factors in the context of other biopsychosocial variables in the weight management process that would lead to clearer understanding of the mechanisms linking personality and weight issue in a Lithuanian women sample.

In line with the purpose, the following **research questions** will be addressed in this study:

(1) What Adlerian Lifestyle themes (in the context of other biopsychosocial factors) are the potential risks and deterrents for the incorrect perception of weight?

(2) What Adlerian Lifestyle themes (in the context of other biopsychosocial factors) are the potential risks and deterrents for the incongruence of the perceived weight situation and the intention to manage weight?

(3) What Adlerian Lifestyle themes (in the context of other biopsychosocial factors) are the potential risks and deterrents for the not corresponding with healthy behaviour and corresponding weight controlling behaviour to the intention to manage weight?

(4) What is the interrelatedness of Adlerian Lifestyle themes, behavioural variables, and Intuitive Eating?

(5) What behavioural and biopsychosocial variables are the most sufficient correlates for the BMI?

## **Approbation of the research**

### ***Journal Articles:***

1. Gaubė, J. (2015). The new approach to the weight management: Interrelatedness of Intuitive Eating, Adlerian lifestyle and body mass index among Lithuanian women. // Social transformations in contemporary society : proceedings of an international scientific conference for young researchers [Elektroninis išteklius] / Mykolas Romeris University. Doctoral candidates' association. Vilnius : Mykolo Romerio universitetas.
2. Gaubė, J. Kern, R. M., Stoltz, K. (2015). Psychometric properties of BASIS-A: Lithuanian version. *Journal of Individual psychology*, 71(3).
3. Gaubė, J., Kern, R. M. (2015). Importance of Adlerian Lifestyle personality attributes for BMI among woman. *European Scientific Journal*, 11(2), 91-109.
4. Liesienė [Gaubė], J., Endriulaitienė, A., Bukšnytė, L., Gustainienė, L., & Kern, R. M. (2010). Predicting Work Attitudes and Turnover Intentions among Officers: The Importance of Adlerian Personality Attributes // Is, Guc: *The Journal of Industrial Relations and Human Resources* [Electronic source]. Izmit, Turkey: Kocaeli Universitesi, 12(2), 43-58.

### ***Presentations in International Scientific Conferences:***

1. Gaubė, J. (2015, June). The new approach to the weight management: Interrelatedness of Intuitive Eating, Adlerian lifestyle and Body Mass index among Lithuanian women. International Scientific Conference for Young Researchers “Social Transformations in contemporary Society 2015”, Vilnius, Lithuania.
2. Liesienė [Gaubė], J. (2010, April). Psychometric properties of BASIS-A: Lithuanian Version. International Young Scientists Conference, Šiauliai, Lithuania.
3. Liesienė [Gaubė], J., Kern, R. M. (2010, April). Adlerian lifestyle: application of BASIS-A personality questionnaire in organizations, Scientific-practical conference: problems of business psychology, Vilnius, Lithuania.
4. Liesienė [Gaubė] (2009, May). Predicting work attitudes and turnover intentions among officers: The importance of Adlerian personality attributes. 14th Congress of Work and Organizational Psychology, Santiago de Compostela, Spain.

***Presentations in National Scientific Conferences:***

1. Gaubė, J. (2014, December). Psichosocialiniai svorio kontrolės ypatumai: kaip sėkmingai keisti savo įpročius? (Psychosocial peculiarities of weight control: how to succeed in changing habits?) 4th Scientific-practical conference for teachers: Healthy teacher - successful teaching, Radviliškis, Lithuania.
2. Gaubė, J., Kern, R. M. (2014, November). Relation between social support, income and weight control among employed women: the role of socially responsible organization. 5th Conference of Organizational Psychology: Socially responsible organization from psychological perspective, Vilnius, Lithuania.
3. Liesienė [Gaubė], J., Kern, R. M. (2010, March). Assessment of the Lifestyle in organizations, consulting, and research (Gyvenimo stiliaus įvertinimas organizacijose, konsultavime, tyrimuose). Annual conference of the Society of Individual Psychology, Vilnius.
4. Liesienė [Gaubė], J. (2009, May). Gyvenimo stiliaus pagal Adlerį prognostinė vertė darbinėms nuostatoms. (Predictive value of Adlerian Lifestyle for work attitudes). Scientific-practical conference "Psychologist in organization: today and tomorrow", Kaunas, Lithuania.

# **1. PROBLEMS OF RESEARCH RELATED TO WEIGHT MANAGEMENT VARIABLES**

## **1.1. Explanation of weight management in various theories**

There are number of theories that attempt to explain a person's behaviour. Many of the studies focus on behavioural change. As one might expect, a variety of factors including demographic, social, emotional, personality and cognitive variables must be considered related to health behaviour (Rosenstock, 1974; Taylor, 1991; Adler & Matthews, 1994; Baum & Posluszny, 1999; Teixeira et al., 2005; Van Diest, 2007; Kakizaki et al., 2008; Thompson et al., 2008; Terracciano et al., 2009). Importance of social factors, such as parental models, peer influences or cultural values has been supported (McNeil et al., 1998; Wardle & Steptoe, 1991). Emotional factors were found to be related to overeating among obese people (Greeno & Wing, 1994). Personality theory suggests that there is considerable evidence linking personality traits or combination of traits to behaviour (Furnham & Heaven, 1999). Finally, there are important cognitive factors, such as knowledge about the health issues that might cause certain behaviour, health risk and possibility to this risk performing some behaviour, perceived social pressure for certain behaviour, and perceived control over behavioural performance.

### **1.1.1. Weigh management process in relation to Social Cognition approach**

One popular model used to describe behaviour is the Social cognition approach that focuses on individual cognitions and thoughts which are between observable reality and responses to various situations (Fiske & Taylor, 1991). According to this approach behaviour is best understood as a function of the individual's perception of reality. If to use the Individual Psychology terms one would propose that these perceptions are reflective of the individual's lifestyle, therefore Adlerian lifestyle is considered as related to motivation or behaviour. As described by Gollwitzer (1993), there are two types of behaviour that include motivational and volitional phases. The motivational phase can be described as a phase of consideration of expectations and ends with decision concerning the goal to be pursued. The second, volitional is a phase of planning and action to achieve the goal (Conner & Norman, 2005). Adler would describe these two phases as purposefulness of behaviour related to lifestyle dynamics.

### 1.1.1.1. Social Cognition models in relation to health behaviour

To follow are three of the most popular health-related behaviours social cognition models to explain the weight management process.

*Theory of Planned behaviour (TPB)* is perhaps the most popular theory used to explain social and health behaviour (Rivis & Sheeran, 2003). TPB extended the theory of reasoned action (TRA; Ajzen & Fishbein, 1980) (Figure 1). Ajzen (1991) adjusted TRA and included the variable of self-efficacy that was based on the social cognitive theory used to explain individual behaviour (Bandura, 1986).

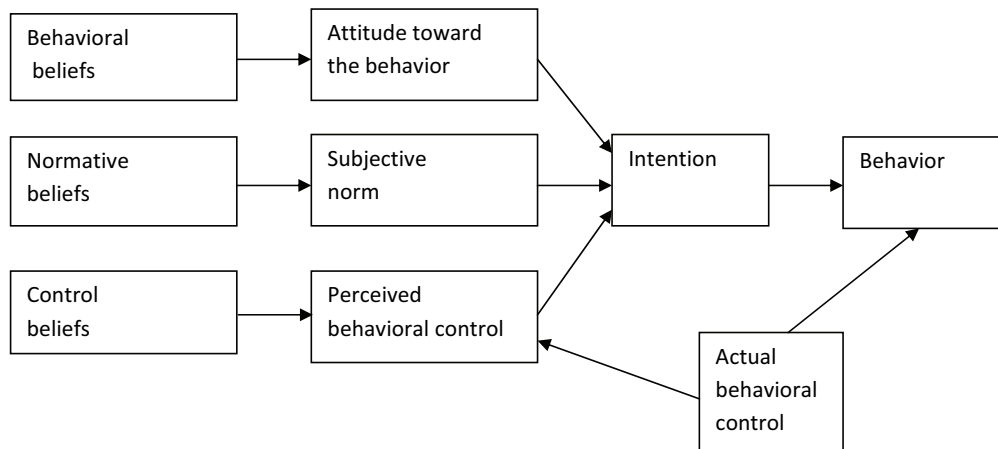


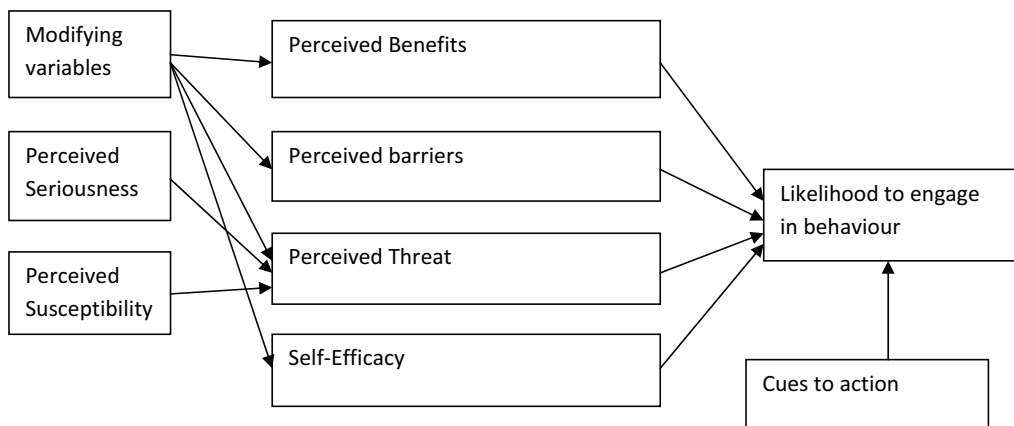
Figure 1. Variables of the Theory of Planned Behaviour (TPB)

Source: Ajzen, I. (2006). *TpB Diagram*.  
Retrieved: Jul. 27, 2014 from the World Wide Web:  
<http://people.umass.edu/ajzen/tpb.diag.html>

According to the TPB model, behaviour is determined by behavioural intentions. The TPB consist of three components: beliefs about the consequences of the behaviour (behavioural beliefs which produce a favourable or unfavourable *attitude toward the behaviour*), beliefs about the expectations of others (normative beliefs that result in perceived social pressure or *subjective norm*), and beliefs about the factors that may facilitate or impede performance of the behaviour (beliefs that lead to *perceived behavioural control*). The more favourable the attitude and subjective norm and perceived control, the stronger the person's intentions will be to perform the behaviour (Ajzen, 2006; Rivis & Sheeran, 2003, see Figure 1). One of the major limitations of the application of the Theory of Planned behaviour is the narrow focus of the behaviours, which makes it difficult to generalize the findings in future studies. Moreover, predictive value is questionable (Armitage & Conner, 2001). In addition the model does not

address personality characteristics, demographic variables, social status and other variables (Ajzen & Fishbein, 1980). There is however research that supports the use of the model (Armitage & Conner, 2001).

*The Health Belief Model (HBM)* was developed in the 1950s by social psychologists Irwin M. Rosenstock, Godfrey M. Hochbaum, S. Stephen Kegeles, and Howard Leventhal. According to this model, health behaviour is viewed as an expression of health beliefs.



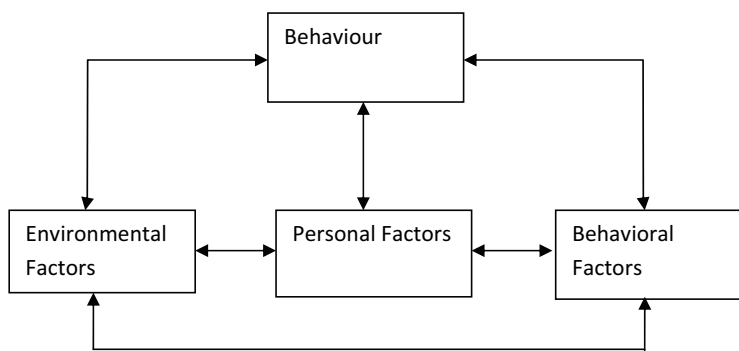
*Figure 2. Variables of the Health Belief Model (HBM)*  
(Strecher & Rosenstock, 1997)

Components of the model include the person's own perception of susceptibility to a disease or condition, the perceived likelihood of contracting that disease or condition, the perceived severity of the consequences of contracting the condition or the disease, the perceived benefits of care and barriers to preventive behaviour. Furthermore the variable named *Cues to Action* also affects Action and might include such internal or external stimuli as media or social pressures of loved ones. Cues to action can be anything that triggers a decision to change behaviour (Rosenstock, 1974; Becker, 1974, Strecher & Rosenstock, 1997, see Figure 2). The authors expanded the model by adding the variable of self-efficacy based on their research findings on unhealthy habits such as smoking and drinking behaviour (Rosenstock, Strecher, & Becker, 1988).

Contrary to the TPB, HBM includes individual characteristics (demographic, psychosocial, and structural variables) as modifying variables that can affect behaviour indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers. Examples of demographic variables include age, sex, race, ethnicity, and education. Psychosocial variables

included personality, social class, and peer and reference group pressure. The knowledge about a given disease or prior contact with the disease could stand for Structural variables (Rosenstock, 1974). However, the health belief model has been criticized for not considering the impact of emotions on health-related behaviour. For example, some researchers suggest that fear may be a key factor in predicting health-related behaviour (Glanz, Rimer, Viswanath, 2008).

*Social Cognitive Theory (SCT)* was created in 1986 by Albert Bandura. Bandura described three types of factors that interact and determine behaviour. These factors are: (1) personal variable or self-efficacy toward the behaviour; (2) behavioural variable or the result of the behaviour and (3) environmental variables that support or trigger the behaviour (Figure 3). Research supports the assumption of other theories related to the importance of the individual's self-efficacy as a major component in the perception of goals, tasks, and challenges (Bandura, 1993, 2001). Therefore individuals with low self-efficacy are more likely to avoid challenging tasks.



*Figure 3. Variables of the Social Cognitive Theory*

*Retrieved: Jul. 27, 2014 from the World Wide Web: <http://www.emory.edu/EDUCATION/mfp/eff.html>.*

*Pajares (2002). Overview of social cognitive theory and of self-efficacy.*

Conner and Norman (2005) described and compared social cognition models including the Health Belief Model, Protection Motivation Theory, Social Cognitive Theory, Theory of Planned Behaviour, Health Locus of Control, and Stage models of Health Behaviour. They concluded that all of the cognitive models have very similar predictive value and that the self-efficacy construct might be described as a key social cognition variable in health behaviour. The sufficient support for the self-efficacy might be considered as a support for the importance of personality attributes in health-related behaviour, including weight management process.

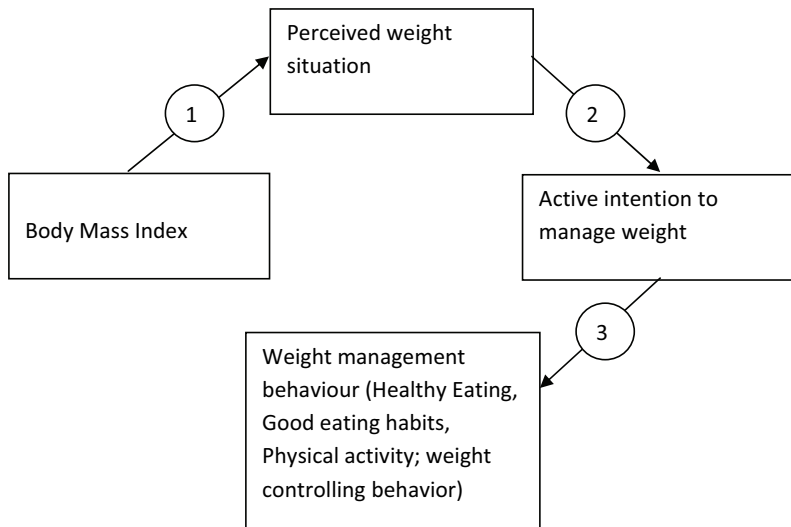
Sapp (2002) proposed that social cognitive theories emphasize the relation between attitude and behaviour and rely upon a hierarchy-of-effects principle of beliefs (knowledge), cause affect (attitudes), which causes conation (intention), which causes behaviour. Although some researchers (e.g. Knabe, 2012) criticized social cognitive models because of their rational base and ignorance of some irrational decisions, Ajzen (2011) claimed that these criticisms were an inappropriate interpretation of the theory. He stated that there is no assumption in the TPB, that the attitudes are rational and exactly reflects the real situation. Therefore, when we research the weight management question, it is important to focus on the perception of weight as one of the factors that may influence further weight management. The incorrect perception of weight situation as well as other possible mistakes related to weight issue will be presented in the next chapter.

#### *1.1.1.2. Weight management process*

In the present study the weight management process will follow the model described by Sapp (2002). Three of the mistakes related to weight issue presented by Sapp include: (1) incorrect perception of weight situation, (2) incongruence between perceived weight situation and the active intention to manage weight and (3) not corresponding with healthy behaviour to the active intention to manage weight. In this study the research explored the connection of these mistakes, BMI, perceived weight situation, present active intention to control weight and behavioural variables (healthy eating, good eating habits, physical activity and weight controlling behaviour). This is visually illustrated in figure 4. Circle 1 represents the first mistake of incorrect perception of weight situation. Circle 2 low relationships represents second mistake of incongruence between perceived weight situation and the active intention to manage weight. Finally, third (circle 3) relation indicates third possible mistake when not corresponding with healthy behaviour to the active intention to manage weight.

In review, healthy weight management according to the Figure 4 would be: (1) Fit/congruence between BMI category and perceived weight situation; (2) active intention to manage weight based on the perceived weight situation, and (3) supported association between intention to manage weight and healthy behaviour. Each of these variables will be described in the frame work of social cognitive models.





*Figure 4. Weight management process based on Social Cognition Approach*

**Body Mass Index.** If we set a goal for change, it is important to evaluate the present situation as a background variable for behavioural prediction. However, there is no measure of objective or subjective evaluation of the current situation in the TPB model. Contrarily, HBM includes the Modifying variables and Cues to Action as the information about the person's situation in relation to the disease or behaviour (Rosenstock, 1974; Health Belief Model, 2008). Furthermore, Bandura in SCT includes the variable named as Environmental, which is one of the three main determinants of the behaviour. Ajzen (2002) recommends including descriptive norms which might contribute to the subjective norms. Contrary to the subjective norms which are based on the attitudes (about the behaviour) of key people in one's life, descriptive norms come from the society and describe what most people do (Ajzen, 2002). If to focus not on the specific behaviour, but the goal, the researcher proposes that healthy BMI norms could be named as a descriptive norm. It is natural, that there may be a gap between a present situation and preferred result that motivate the individual to take action. Furthermore, BMI reflect the knowledge of the situation presented by Sapp (2002) as the first part of the generalized behaviour schema. Therefore the researcher included BMI in the model as an important variable that described the present situation in the weight management process. Sapp (2002) stated that knowledge impacts attitudes. In this study attitudes will be replaced with the perception of the present situation or perceived self-weight situation.

**Perceived weight situation.** There are three types of possible predictors of behavioural intention in TPB and two of them might be related to the perceived situation. Keer, Conner, Putte, & Neijens (2014) supported the significant relation between the extent to which intention is based on affect and that perceived behavioural control was stronger than subjective norms (Armitage & Conner, 2001). The implication is that emotional and personal factors such as attitude and perceived behaviour control determine behaviour. Finally, Taylor with colleagues (2007) suggested that behavioural and normative beliefs are determined by perceptions of situation. The research supports former statement that the individual's perception of the present weight situation might contribute to the formation of intention to change or maintain the present weight.

Self-perception of weight appropriateness or perceived weight situation is an important component of eating and weight-loss behaviours (Chang & Christakis, 2003). Yet, there were studies that did not find significant relation between perceived weight and healthy eating or physical activity (Adame & Frank, 1990). Some authors, however, consider that perception of self-weight seems to be a more important variable than actual weight in relation to outcome variables such as well being, life satisfaction, and weight management (Miller & Downey, 1999; Ojala et al., 2007; Chuang & Lee, 2010).

The significant relation between one's actual BMI assessment and perceived weight has been supported (Ali, Minor & Amialchuk, 2013), which seems to support the idea that incorrect perception of weight situation is not frequent. However, the mismatch between perceived weight (subjective evaluation of the weight appropriateness) and weight classified by medical norms was found in several prior studies (Chang & Christakis, 2001; Rahman & Berenson, 2010; Boo, 2014; Bodde et al., 2014; Agrawal et al., 2014).

Incorrect perception of weight situation seems to be one of the possible reasons why overweight or obese people do not take actions to solve the weight issue and current preventive strategies do not work (Miller et al., 2008; Duncan et al., 2011; Chen, Jahns, Gittelsohn, & Wang, 2012; Bodde et al., 2014; Yang, Turk, Allison, James, & Chasens, 2014; Boo, 2014; Agrawal et al., 2014). It may be that overweight or obese individuals do not perceive their situation as problematic as the health and medical community. After all, one of the background rules when analysing behaviour or behavioural change is the requirement of the individual to be dissatisfied with the present situation. Thus, if the person is satisfied, there is low probability that the individual will have an intention to change or take any related actions. If, however, an individual over estimates one's weight as overweight but individual's weight is in the normal BMI range, this may be indicative of some form of eating disorder (Ross & Wade, 2004;

Gingras, Fitzpatrick, & McCargar, 2004). Such an over-classification of weight was found as frequent in the sample of Lithuanian girls (Buzaitytė-Kašalynienė, Rinkevičienė, 2009).

A number of other studies have also been conducted where the individual perceives his/her weight as normal but the BMI classification was in medical terms classified as overweight or obese (Miller et al., 2008; Duncan et al., 2011; Chen, Jahns, Gittelsohn, & Wang, 2012; Bodde et al., 2014; Yang, Turk, Allison, James, & Chasens, 2014; Boo, 2014). Perceived weight situation may contribute to the further intention to manage weight. For example, in a study by Parham-Payne (2013) it was revealed that the majority of obese people had an intention to lose weight, while more than half of those people with BMI classified as overweight, had an intention to keep their current weight. Some studies, however, did not reveal the relation between accuracy of weight perception and positive or negative weight outcomes (Canpolat, Orsel, Akdemir, & Ozbay, 2005; Van Minnen, Davis, Bruce, & Davis, 2011).

Various studies have identified variables that were related to the misclassification or incorrect perception of self-weight. These variables included socioeconomic status (Chang & Christakis, 2003; Alwan et al., 2010; Boo, 2014), age (Chang & Christakis, 2003; Boo, 2014), marital status (Chang & Christakis, 2003; Boo, 2014; Mogre, Abedandi, & Salifu, 2014), gender (Chang & Christakis, 2003; Knight, Illingworth, & Ricciardelli, 2009; Alwan et al., 2010; Squiers et al., 2014), education (Chang & Christakis, 2003; Squiers et al., 2014), race (Chang & Christakis, 2003; Squiers et al., 2014), BMI (Maximova et al., 2008; Rahman & Berenson, 2010; Gruszka et al., 2011; Mogre, Abedandi, & Salifu, 2014) and personality (Sutin & Terracciano, 2014). The research in relation to misperception of weight and BMI has yielded contradictory findings. Some studies found a significant relationship between misperception of weight and BMI (Miller et al., 2008; Maximova et al., 2008; Gruszka et al., 2011; Mogre, Abedandi, & Salifu, 2014), however, other studies revealed that misperception of weight are common for both normal weight and overweight individuals (Rahman & Berenson, 2010).

In reference to weight management, the researcher in this study proposes that a person who fears gaining weight will be more likely to take actions in relation to his/her weight management. Perceived weight situation should be considered as an evaluative or perception variable which describes how person see the situation from his/her perspective and may be a mediating variable between BMI and intentions to manage weight.

**Active intention to manage weight.** Behavioural Intention has been possibly the most researched and supported variable that mediates the relations between predictors and behaviour in the TPB and Theory of Reasoned Action (Ajzen & Fishbein, 1977; Ajzen, 1985, 1991; Ajzen

& Madden, 1986) as well as in a number of other theories (Eagly & Chaiken, 1993; Austin & Vancouver, 1996; Abraham, Sheeran & Johnston, 1998). However, a meta-analytic study by Sheeran (2002) indicated that only 28 percent of the variance of the goal achievement was explained by the intention. Such a result supports the idea, that there are number of other variables that account for intention and behaviour (Broonen, 2010). Some of these variables include the affective rather than cognition based motives for certain behavioural intentions (Keer, Conner, Putte, & Neijens, 2014), action and coping, planning (Caudroit, Boiché, & Stephan, 2014), or personality characteristics (Chatzisarantis & Hagger, 2008). However, other social cognitive models presented in this study HBM and SCT do not include behavioural intention as a variable in the model (Gerend & Shepherd, 2012).

Many researchers have suggested that a percentage of explained variance of intention and behaviour was insufficient and they have proposed additional variables to improve the predictive value of the TPB model (Beck & Ajzen, 1991; Parker, Manstead, & Stradling, 1995; Terry & O'Leary, 1995; Parker et al., 1995; Richard, van der Pligt, & de Vries, 1995; Gibbons et al. 1998; Armitage & Conner, 1999; Armitage & Conner, 2001; Sideridis & Kaissidis-Rodafinos, 2001; Perugini & Bagozzi, 2001; Pesseau, Sniehotta, Francis, & Gebhardt, 2010). Some of the authors proposed that including the goal or desire focused variable into the model of TPB might help to explain one's behaviour (Gibbons et al. 1998; Sideridis & Kaissidis-Rodafinos, 2001; Perugini & Bagozzi, 2001; Pesseau, Sniehotta, Francis, & Gebhardt, 2010). Moreover, Sideridis and Kaissidis-Rodafinos (2001) as well as Pesseau with his colleagues (2010) supported the importance of the goal variable. However, in their studies goal was indicated at the behavioural level (e.g. goal 'to study hard' instead of goal 'to get max evaluation in the exams' or goal 'participate in regular physical activity' instead of 'lose some weight'). Thought, Perugini and Bagozzi (2001) created a model of Goal-directed behaviour and in their study the purpose of the behaviour was included together with the desire (e.g. participants were asked to evaluate the statement 'my desire for doing physical exercise in the next four weeks in order to decrease my body weight [stay at the same body weight] can be described as' in the scale of six). The mediating effect of desire between predictive variables and intention was supported. Setting a goal or desire for what the individual wants to achieve appears to contribute to change in behaviour. Other ideas by researchers on intention are as follows.

Ajzen and Fishbein (1980) suggested that the predictive variables, intention and behaviour should be measured at the same level in the TPB based model. Questionnaire based on the HBM, which should also include only behavioural level variable. This means that intention only

for specific behaviour should be included in the traditional model based on TPB (e.g. 'I intend to eat three portions of vegetables during the day in the next month'). Although intention and behaviour should be measured at two different times if researchers want to test the original model of TPB, some authors describe intention as a first stage of action (Proschaska & Velicer, 1997). Therefore, after evaluating in previous chapter presented information about the gap between the behavioural intention and actual behaviour, importance of goals, the absence of behavioural intention in HBM and SCT as well as taking in account the goal to be able to generalize the findings of present study for the future research, no intention for the specific behaviour was included in the present study. Instead the current active intention was measured by the statement 'currently I am actively involved in losing weight (or keep current, or gain)' in the model.

**Weight management behaviour.** As presented in Figure 1 the TPB behaviour was considered as the outcome of behavioural intention and usually was applied to describe a specific behaviour. The same specificity is required in the HBM and SCT models. However, the present study included current active involvement with the intention to lose/keep/gain weight with the emphasis on the weight-related goal (not behavioural intention for specific behaviour) in the model. In addition specific types of behaviour have been included, following the suggestions presented by health specialists (Astrauskienė et al., 2011; WHO, 2013) and research on weight management (Wing & Hill, 2001; Stubbs et al., 2011). The author extrapolates from this proposed model that individuals who have weight-management intentions to keep current or lose weight might choose healthy food and eating habits and participate in physical activity or be involved in more severe weight controlling behaviours. Each of the mentioned weight-related behaviour will be discussed in the next chapter.

#### 1.1.1.2.1. Healthy and drastic ways of weight management

The majority of studies related to weight management and practitioners working with overweight or obese people focus on eating habits and physical activity. These behaviours are extracted for the number of health-related behaviours that mainly include healthy eating, physical activity, smoking, and heavy-drinking. These behaviours effect the relation between nature social environment and health or well-being (Watt et al., 2014).

Many researchers have supported the significance of choosing a healthy diet (diet quality or for example snacking with vegetables or fruits and avoiding desserts or sweets), good eating

habits such as eating breakfast, avoiding late night snacks, and exercising as a way of maintaining a healthy BMI (Wing & Hill, 2001; Riou, et al., 2011; Sundararajan, Campbell, Choi, & Sarma, 2014; Vitale, Jirillo, & Magrone, 2014; Guth, 2014; O'Neil, Nicklas & Fulgoni, 2014; Aljuraiban et al., 2015; Barnes, French, Harnack, Mitchell, & Wolfson, 2015).

Although results of physical activity are clear, there are contradictory findings related to healthy eating behaviour and effective weight management. Healthy eating norms were supported as related to certain food consumption (Wang & Worsley, 2014). Yet, healthy eating attitude was related to healthy diet, but was not related to BMI in a sample of more than 1500 students (Fyler, Schumacher, Banning, & Gam, 2014). Another study found a positive relation between healthy eating, self-efficacy and BMI (Clum, Rice, Broussard, Johnson, Webber, 2014). Although physical activity was supported as a significant correlate for healthy BMI among both genders, the importance of the quality of the diet for BMI seemed to be important for men, but not for women (Pate, Taverno Ross, Liese, & Dowda, 2015).

Moreover the possible negative outcomes or addiction to healthy eating have been explored recently. Some scholars suggested that healthy eating attitude can develop in to a pathological condition referred to in the literature as Orthorexia nervosa. Bratman (1997) describes this condition of an eating disorder in which the person is excessively preoccupied with healthy food or identifies affixation on healthy food or health food dependence (Varga, Dukay-Szabó, Túry, & van Furth, 2013, 2014). According to some scholars, obsession about healthy food, leads not only to dietary restrictions but also to a number of negative psychological and social outcomes (Mathieu, 2005; Brytek-Matera, 2012). Although clinicians are interested in this type of behaviour, orthorexia nervosa has received very little empirical attention and is not formally recognized as a psychiatric disorder (Koven & Abry, 2015).

On the other hand, more drastic ways to control weight such as strict diets or fasting have been found as having negative physical and psychological outcomes (Carrier, Steinhardt, & Bowman, 1994; Tribole & Resch, 1995; Steinhardt, Bezner, & Adams, 1999; MacDougall, 2010). Despite these negative outcomes and limited effectiveness from a long-term perspective (Mann et al., 2007; Sung, Lee, Song, 2009), strict dieting and using supplements or fasting remain popular strategies related to weight management (Hooper, 2014; McCarthy, 2014).

Therefore it is important to identify other factors that might increase the possibility of healthy ways to manage weight instead of choosing drastic weight controlling behaviours.

#### 1.1.1.2.2. Role of the personality in weight-related behaviour

A numbers of researchers have investigated the correlates (including personality) of certain type of behaviour (McNeil et al., 1998; Baum & Posluszny, 1999; Furnham & Heaven, 1999; Ravis & Sheeran, 2003; Ajzen, 2006). Some studies have supported the relation between personality characteristics and healthy eating or physical activity (Elfhag & Morey, 2008; Provencher, Bégin, Gagnon-Girouard, Tremblay, Boivin & Lemieux, 2008; Chatzisarantis & Hagger, 2008). However, there are no clear explanations for these relationships or the mechanisms linking personality and certain types and weight related behaviours. For example higher extroversion might be related to less intention to manage weight, but on the other hand higher extroversion might increase the possibility that individual who has an intention to lose weight will choose more healthy food and will be more physical active and less involved in unhealthy weight control behaviour. One of the questions in this study was to find which Adlerian lifestyle themes/personality attributes in the context of other biopsychsocial variables are related to choosing certain type of behaviour to manage weight (relation between "actively doing" and "what doing"). Moreover the predictive value of measured behavioural variables for BMI will be explored.

Personality characteristics, demographic variables and other factors such as social status are excluded from the TPB and considered as important external variables (Ajzen & Fishbein, 1980). According to Ajzen (1991), a person requires resources and opportunity to perform a specific behaviour. There is several different interpretations related inclusion of external variables in the model. On the one hand Ajzen (1991) suggested that external variables are welcome if they increase the percentage of explained variance of behaviour. On the other hand he stated that external variables decrease the reliability of the model. Overlooking the research based on the Theory of Planned behaviour, the most important variable that predicted behaviour was found to be perceived behavioural control (Ajzen, 1991; Ravis, & Sheeran, 2003), however some authors questioned the effectiveness of this measure in all the situations (Kraft, Rise, Sutton, & Roysamb, 2005). This means that if person believes that he or she will be able to control planned behaviour under any circumstances (especially under risky ones), he or she will try to behave in the planned way. Perceived behavioural control might be seen from several perspectives - one of them would be as a situational factor that might change according to the certain behaviour and another would be as a more stable personality attribute, called self-efficacy. Self-efficacy after all was named as a key variable in HBM and SCT. If self-efficacy is a valuable construct to consider in relation to the connection of individual difference one might

ask the question of what additional personality attributes may impact the weight management process?

### **1.1.2. Weight management from an Individual Psychology perspective**

Individual Psychology which views the individual from a holistic perspective might be of help to explain motivational dynamics of individuals who may or may not struggle with weight issues. Individual Psychology stresses the purposefulness or motivational dynamics of behaviour, the importance of social context, and individual childhood experiences. This holistic perspective is imbedded in the personality construct that Adler referred to as lifestyle, life plan or style of life. Adler (1927) and Ansbacher and Ansbacher (1964) describe Lifestyle as a goal directed that integrates social goals of the perceived environment and to a lesser degree the emphasis on an individual's biological and genetic attributes. In this study Lifestyle will be used as a synonym for what other scholars would refer to as personality. The definition that will be used is the one by Jonyniene and Kern (2012). They propose that lifestyle is an organized set of beliefs that an individual creates before the age of seven within the confines of the family that the individual consistently employs throughout life to solve problems related to social relationships, career, intimacy and we believe issues related to weight.

From the perspective of Individual Psychology one of the possible reasons why a person becomes overweight might be the childhood experience in the one's family of origin (Belangee, 2007). For example, a family atmosphere where being thin is valued might increase the possibility of eating disorders in the child's future. On the other hand unhealthy behavioural attitudes in the family might lead to unhealthy behaviour when the child grows up. We could also discuss the parent's response to the infant's needs in more specific way. If, for example, in early infancy, the parent unintentionally provided food to an infant when the need was not hunger but was and unfulfilled emotional/psychological need, it may not only "teach" the child a way to take care of his/her emotional or physiological needs, but also may increase the impulse to overcome the experienced frustration in a non-functional way in the future. These early experiences may result in the adult person who tries to take care of oneself independently and attends to his/her emotional needs such as anxiety, stress, or frustration by consuming food. So the sense of control or being in charge of one's emotional needs may develop into a personality dynamic/lifestyle that is used to cope with a number of life's challenges of which weight becomes one of them. From an Individual Psychology perspective one must understand the



purpose of behaviour, perceptions, and family dynamics to most effectively understand the why of weight issues.

#### *1.1.2.1. BASIS-A as a reliable personality instrument*

With the exception of the Meyers Briggs Type Indicator Inventory, which is based on the theory proposed by Carl Jung, there are few assessment tools that are anchored in a comprehensive personality theory. The advantage of using Individual Psychology as a comprehensive theory is that extensive research has been devoted to the development of an instrument that was specifically developed to measure a construct that encompasses a majority of the theoretical tenets of personality, as proposed by Alfred Adler. The construct is lifestyle and the instrument is the Basic Adlerian Scales for Interpersonal Success-Adult (BASIS-A).

The instrument was developed in United States after 20 years of research, and evolved from several other lifestyle instruments created by the authors. As presented in the BASIS-A Inventory Interpretative Manual (Kern, Wheeler, & Curlette, 1993), the BASIS-A Inventory is a unique psychological instrument requiring individuals to recall childhood experiences rather than respond to questions concerning present functioning. All items on the BASIS-A Inventory begin with the phrase, "When I was a child, I..." The items have two essential characteristics in common: (a) they form underlying dimensions, and (b) these underlying dimensions about childhood perceptions predict current functioning. The instrument consists of five major scales: Belonging/Social Interest (BSI), Going Along (GA), Taking Charge (TC), Wanting Recognition (WR), and Being Cautious (BC). BSI concerns the individual's comfort with entering and being a part of a group. GA represents a person's need to understand and follow social norms. TC characterizes a person's need to control social activities and assume leadership roles in the environment. WR denotes an individual's need for acknowledgement of accomplishments. BC typifies a person's fear and anxiety in social situations. Further discussion of the scales can be found in Eckstein & Kern (2009).

Additionally, there are five supporting scales: Harshness (H), Entitlement (E), Liked by All (L), Striving for Perfections (P), and Softness (S). The Harshness scale measures whether a person tends to have a negative self-view. The Entitlement scale assesses the degree to which a person prefers being treated as special in social settings. The Liked by All scale measures the importance of approval from others and the Striving for Perfection scale measures a person's tendency to strive for achievement and set high standards. The Softness scale, measures the potential for responding in a socially desirable way on the instrument. Additionally, the Softness scale can be interpreted to be a measure of optimism a person has about self and the world.

The BASIS-A provides insight about an individual's general problem solving approaches to life based on the perceptions resulting from one's early childhood experiences (Frey & Snow, 2005). The instrument was created via years of research whereby the authors of the instrument isolated the most important constructs of Individual Psychology and then created items to directly measure the constructs inherent in the theory (Curlette, Wheeler & Kern, 1993).

Studies related to the field of health psychology have supported the use of the BASIS-A that have included topics related to stress coping (Kern, Gfroerer, Summers, Curlette & Matheny, 1996; Santamaria, 2002; Herrington, Matheny, Curlette, McCarthy & Penick, 2005; Suprina, 2006; Stoltz, Wolff, Monroe, Farris, & Mazahreh, 2013), substance abuse (Bauman, 2001), and insulin dependent diabetic patients (Kern, Penick & Hambry, 1996). Research supports the relationship between Adlerian lifestyle themes and weight issue in relation to lower Wanting Recognition, Being Cautious and Liked by all scales and higher Belonging/Social Interest and Softness scales (Savaiano-Brady, 2001; Stoltz et al., 2009). Belangee, Sherman and Kern (2003) found that higher scores on Wanting Recognition and Being Cautious scales were related to eating disorders. Another study revealed that clients with anorexia nervosa tend to restrict their life tasks of work, society and love and these restrictions may come from feelings of inferiority (Strauch & Erez, 2009). Gaubè and Kern (2015) indicated the significant role of TC (Taking Charge) theme in relation to increased weight.

Although there has been discussion of what comes first, personality traits which lead to overweight, or in the opposite (Sutin et al., 2013), the author of this study agrees with Provencher et al. (2008) that particular dimensions of personality may contribute, either directly or through their association with other factors, to the weight. It is proposed in this study that personality attributes may be related to the four of identified variables and moderate the three relations in the previously presented weight management process (see Figure 4 and Figure 5).

Intuitive eating as well as some interpretations based on IP, emphasize the need to identify and follow physiological hunger rather than emotional reasons for eating. Intuitive eating approach will be discussed in the next chapter.

### **1.1.3. Description of Intuitive eating and its' importance in weight management**

Weight loss strategies traditionally fall into one of three categories that include food restriction, medical intervention, and life changes (Gast & Hawks, 1998; Mann, Tomiyama, Westling, Lew, Samuels, & Chatman, 2007; Powell, Calvin, & Calvin, 2007). Restriction or

elimination of certain type of food was not supported as successful way for long term weight loss (Mann et al., 2007). Moreover, food restriction diets might produce harmful side effects including a preoccupation with body size and shape, binge eating, weight cycling, and slow metabolism (Carrier, Steinhardt, & Bowman, 1994; Tribole & Resch, 1995; Steinhardt, Bezner, & Adams, 1999; MacDougall, 2010). Dieting may teach people to follow the external rules instead of learning to understand and follow their body signals such as physiological hunger and satiety (Tribole & Resch, 1995).

Medical intervention related to weight issue includes drug therapy (e.g. orlistat, sibutramine) or surgery (e.g. gastric bypass). MacDougall (2010) states that these medical interventions might be effective in the short-term but also may lead to the negative side effects (e.g., neurotoxicity and hypertension), addictive behaviour or even the life-threatening risk during surgery (Cole, 2006; Powell et al., 2007). Lifestyle change includes modification of behaviour such as diet and exercise. Powell et al. (2007) stated that some traditional weight loss strategies produce modest weight loss and reduce risk for some serious health conditions, such as diabetes and hypertension. Some behaviour was revealed as common for successful weight loss maintenance including low fat diet, self-monitoring of weight and food intake and a lot of physical activity (Wing & Hill, 2001). Therefore while exploring the so called traditional ways to manage one's weight the researcher will also describe several alternative self-weight motoring approaches such as *Intuitive Eating*, *Health at Every Size* and *Mindful Eating*.

May, Furtado and Ornstein, (2014) described *Mindful eating* as eating with intention and attention, or eating with purpose and awareness. Scholars also explore and identify the negative effect of any type of distractions while eating such as TV or working by computer (Gast & Hawks, 1998; Matheiu, 2009; Outland, 2010; Framson, Kristal, Schenk et al., 2009; May, Furtado, & Ornstein, 2014). Authors describe eating problems that can be addressed using mindful eating such as emotional eating, overeating, feeling guilty or weight cycling. However, these problems are also addressed by Intuitive Eating. Nevertheless there is no agreement on whether Intuitive Eating is a part of Mindful Eating (Framson, Kristal, Schenk et al., 2009) or in opposite, intuitive eating approach includes the ideas of Mindful eating (Gast & Hawks, 1998).

Another approach called *Health at Every Size* states that a person can be healthy regardless of weight (Crerand, Wadden, Foster et al., 2007; Provencher, Begin, Tremblay et al., 2009; Gagnon-Girouard, Begin, Provencher et al., 2010). Such an idea is in contrast with the *Intuitive eating* approach that emphasizes the importance of normal weight. However both approaches agree about the value of self-acceptance and nutrition (Bacon, Stern, Van Loan et al., 2005; Hawley, Horwath, Gray et al., 2008).

Ideas about the *Intuitive Eating* and the life-lasting success in weight management became popular all over the world in practice as well as in research in the field (Tylka & Wilcox, 2006; Tylka, 2006, 2007; Caldwell, Baime, & Wolever, 2012; Tylka & van Diest, 2013). Intuitive eating can be described as an alternative to a diet approach to weight management in that there are few restrictions on type of food intake (Tribole & Resch, 1995, 2003; Tylka & Wilcox, 2006, Tylka, 2006, 2007; Tylka & van Diest, 2013). The main idea of Intuitive eating includes the encouragement for people to eat what they desire and follow their internal signals of hunger and satiety (Tribole & Resch, 1995; Tylka, 2006, Avalos & Tylka, 2006, Augustus-Horvath & Tylka, 2011). Listening, recognizing and following the body signals decrease the possibility of automatic or emotional eating and leads to mindful eating (Kristeller, Baer, & Quillian-Wolever, 2006; Wolever & Best, 2009; Boudette, 2011; Kristeller & Wolever, 2011). Some authors describe intuitive eating approach as body wisdom (Gast & Hawks, 1998).

The term *Intuitive eating* was created and first used in 1995 (Tribole & Resch, 1995). Publication by Gast and Hawks (1998) was the first in relation to Intuitive Eating in peer-reviewed journals (Van Dyke & Drinkwater, 2013). The first scale for Intuitive eating was developed and published in the scientific literature in 2004 (Hawks, Merrill & Madanat, 2004). Two years later Tylka created her original Intuitive eating scale that was based on the ten principles of Intuitive Eating proposed by Tribole and Resch (1995). She clustered all the principles into the three central and interrelated features of intuitive eating of: (1) unconditional permission to eat when and what you want, (2) eating for physical rather than emotional reasons, and (3) reliance on internal hunger and satiety cues to determine when and how much to eat (Polivy & Herman, 1987, 1992; Tribole & Resch, 1995, Fedoroff, Polivy, & Herman, 1997; Carper, Fisher, & Birch, 2000; Tylka, 2006). According to Tylka (2006), intuitive eaters recognize the internal signals of hunger and satiety and give themselves unconditional permission to eat the amount and type of food following the physiological hunger. The Intuitive Eating Scale-2 was created by Tylka and van Diest in 2013. The major adjustment from the original Intuitive Eating Scale was the inclusion of a component of Body-Food Choice congruence.

Tylka and Wilcox (2006) emphasized the lack of integrated predictive model for Intuitive Eating, therefore predictors for adaptive eating and a model of body appreciation and Intuitive Eating was constructed and tested (Avalos & Tylka, 2006). Avalos and Tylka (2006) based the model of Intuitive Eating on the theory of unconditional acceptance (Rogers, 1961; Rogers, 1964) and the objectification theory (Fredrickson & Roberts, 1997). Research on objectification theory (e.g., Buchanan, Fischer, Tokar, & Yoder, 2008; Frederickson & Roberts, 1997; Moradi

& Rottenstein, 2007; Tylka & Hill, 2004) addressed the idea that negative interpersonal and societal messages might contribute to disordered eating through self-objectification and body shame. Avalos and Tylka (2006) proposed the idea that positive interpersonal and societal messages (e.g., unconditional acceptance by others and unconditional body acceptance) could enhance one's use of intuitive eating through a focus on how the body feels and functions versus appearance (i.e., body function) and body appreciation.

Intuitive Eating is considered as healthy for both mind and body (Seligman & Csikszentmihalyi, 2000; Avalos & Tylka, 2006; Gast & Hawks, 2000; Tylka, 2006; Tylka & Wilcox, 2006; Tylka & van Diest, 2013; Van Dyke & Drinkwater, 2013). Despite the used instrument, various studies have analyzed and supported the Intuitive Eating as related to healthy eating (Tribole & Resch, 2003), physical activity (Nielson, 2009), less eating disorders (Tylka, 2006; Tylka & Wilcox, 2006), Body Mass Index (Rozin, Pischler, Imada, Sarubin, & Wrzesniewski, 1999; Hawks et al., 2005; Tylka, 2006) and general well-being (Polivy & Herman, 1992; Tylka, 2006; Tylka & van Diest, 2013). The results of a meta-analytic study indicated a relation between Intuitive eating and psychological outcome but not BMI or healthy eating (Van Dyke & Drinkwater, 2013). To this date there is no research to support the association of Intuitive eating with eating disorders or unrestrained eating (e.g., Kahan, Polivy, & Herman, 2003; Polivy & Herman, 1999).

Studies in other countries, however, have supported the construct validity of Intuitive Eating (Tylka, 2006; Tylka & van Diest, 2013) as well as the benefit of including the ideas of Intuitive Eating in the intervention for weight management process, and positive psychological outcomes (Van Dyke & Drinkwater, 2013, Tylka & van Diest, 2013). However, limited samples make the results of these studies difficult to generalize. The majority of cross-sectional studies included students as respondents and clinical studies included Caucasian woman, therefore Dyke and Drinkwater (2013) emphasized the need for more studies with broad mix of participants in order we could get some generalized findings. They also suggested including other eating variables such as nutrition intake, conduct longitudinal studies and long-term follow-ups after Intuitive eating programs. There is a need for more studies in relation to Intuitive Eating if we want to support the benefit of this approach worldwide. As of this date no empirical studies are available related to use of the approach in Lithuania.

The following sections will identify the overlapping or supporting ideas among Intuitive Eating, Individual Psychology and Social Cognitive models as well as proposing an integrative model for the proposed research.

### **1.1.3. Integration of the weight management process based on Social cognitive models, Individual Psychology and Intuitive Eating**

Social cognitive models, especially TPB, have been criticized because of their narrow behavioural variables and findings that are difficult to generalize. Some authors thought that TPB explained insufficient percentage of variance of intention and behaviour (Armitage & Conner, 2001). Furthermore insufficient percent of behavioural variance that could be explained by behavioural intention (Sheeran, 2002) supported the idea that other variables may explain the behaviour or affect the relation between intention and behaviour (Broonen, 2010). One possible solution presented by the author of the TPB was to include other variables to the model that would possibly explain the variance of behaviour (Ajzen, 1991). Nevertheless HBM and SCT included so called in TPB "external" variables in the models as modifying and cue to act factors in HBM or environmental variable in SCT theory. Yet, those variables were considered as behavioural level ones in these models. The literature has demonstrated the inadequacy between BMI and self-classified weight (Chang & Christakis, 2001; Rahman & Berenson, 2010; Boo, 2014; Bodde et al., 2014; Agrawal et al., 2014) as well as behavioural intention and actual behaviour (Armitage & Conner, 2001) and number of variables (including personality) have been found as related to those inadequacies (Chatzisarantis & Hagger, 2008).

**Adlerian Lifestyle and social cognitive models.** Adlerian lifestyle as discussed in the previous sections is the person's problem solving strategy that one selectively create from personal experiences in one's family of origin and social context. The way the individual creates this problem solving strategy to solve the major tasks of life may be very encouraging and their by validate success or in the terms of the social cognitive model self-efficacy or discouraging that may lead to difficulty in address problems within the social context ranging from career, social, intimate, or in this study the inability to manage one's weight effectively. The importance of the social context as it relates to the formation of behavioural intention and performing behaviour is emphasized by Ajzen (2006), Rosenstock, Strecher, Becker (1988) and Bandura (2011). The major similarity of emphasized importance of the social context construct from an Individual Psychology perspective seems to have a great deal of overlap with the Social Cognition model and Social learning theory (Bandura, 1991) ideas of the significance of others related to human behaviour. Moreover, Ajzen (2006) stated that all the predictors in TPB for intention (attitude toward behaviour, subjective norm and perceived behavioural control) are weighted for their importance among key people in one's life. Adlerian lifestyle seems to be related to what Ajzen called behavioural, normative and control beliefs in TPB and taken as a personality variable in SCT (Ajzen, 1991, Bandura, 2011).

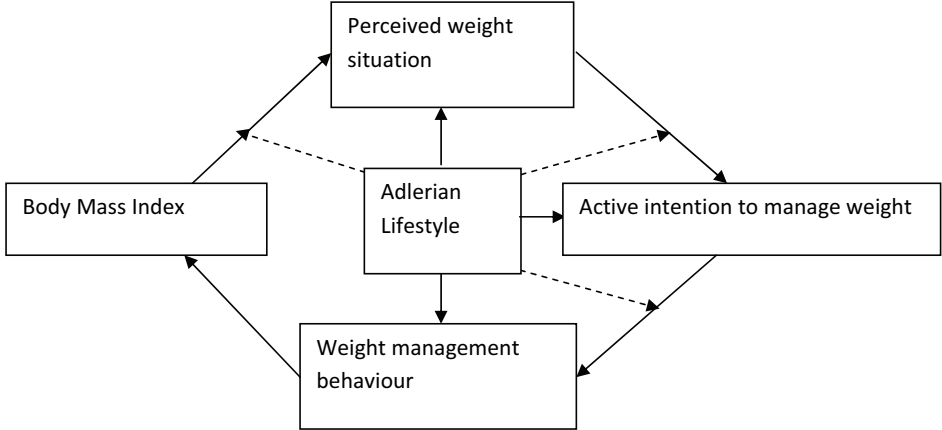
Another link between the Adlerian lifestyle themes and social cognitive models is the possible relationship between certain Adlerian lifestyle themes and perceived behavioural control or self-efficacy in HBM. Furthermore, the relationship between self-efficacy, self-esteem and perceived behaviour control has been supported (Wills, 1994; Terry & O’Leary, 1995), as well as the relation between certain Adlerian themes and self-esteem (Gaube, 2010).

However, personality (Adlerian lifestyle) might play a more complex role in weight management process than affect attitudes, subjective norms and perceived behavioural control. Prior findings supported the moderating role of personality characteristics between behavioural intention and behaviour (Chatzisarantis & Hagger, 2008).

The situational variable of BMI that supports the proposed model with the objective information about the current situation and perception variable perceived weight situation might also contribute to the explanation of the behaviour. The possible variables related to incorrect perception of weight situation have been explored and also included some personality characteristics (Miller et al., 2008; Duncan et al., 2011; Chen, Jahns, Gittelsohn, & Wang, 2012; Bodde et al., 2014; Yang, Turk, Allison, James, & Chasens, 2014; Boo, 2014; Agrawal et al., 2014).

Though personality variables have been included in weight-related studies for years there are no clear explanations of the mechanisms linking personality attributes and weight issues. The author of this study proposed that one of the reasons that personality variables may not have yielded the desired results in previous studies was that the studies over all addressed singular personality attributes such as self-esteem, self-efficacy, conscientious, extroversion and other individual segments of one’s personality. The author in this study proposed that by investigating personality attributes based on an organized theory of Individual Psychology and in particular the lifestyle construct that the findings from this study would aid other researchers in the development of a holistic psychosocially based model to understand the total personality dynamics of individuals struggling with weight issues that then could aid in tailored treatment interventions by professionals. Therefore the researcher will explore Adlerian lifestyle (the main construct of Individual Psychology) that might supply the weight management process model based on the TPB with additional ideas and explanations for weight issue. Although some relations between Adlerian lifestyle and weigh issue have been supported (Britzman & Main, 1990, Savaiano-Brady, 2001, Belangee et al., 2003, Stoltz et al, 2009), exploring the role of Adlerian Lifestyle in the frame of the weight management process might support with more clear ideas about the mechanism linking personality attributes and weight issue. Based on the number of prior findings, the author proposed that Adlerian Lifestyle might contribute to the

perceived weight situation, weight-management intention and weight management behaviour as well as moderate the relations between those weight management variables (Figure 5).



*Figure 5. Weigh management process with predictive and moderating role of Adlerian Lifestyle*

**Adlerian lifestyle and Intuitive Eating.** Our previous research supported, that increased need to feel a sense of control of self and others was an important personality attribute lifestyle for individuals that were overweight (Gaubè & Kern, 2015). We predicted that food may be a safeguarding tendency used by the individual with elevated Taking Charge scores (which measures individual control issues) on BASIS-A<sup>lt</sup> to avoid dealing with other intrapersonal or interpersonal issues. One of the major regulations of normal eating is adequate feelings of hunger and fulfilled hunger. Authors proposed based on the findings in relation to Intuitive Eating (Gast & Hawks, 2000; Caldwell, Baime, & Wolever, 2012; Outland, Madanat, & Rust, 2013) that people that overeat may be lacking the natural impulses that alert a person of his/her hunger needs and satiety. Therefore some individuals struggling with weight issues do not possess the appropriate reflective skills to assess if hunger is a result of a real physiological need or, from an Adlerian perspective, a compensatory, secondary gain, or safe guarding tendency evolving from anxiety, depression, boredom, loneliness, or some other emotional trigger.

Tylka (2006) stated that eating behaviour research in the past has been mostly pathology-focused and used to explore the correlates and predictors of eating disorders rather adaptive eating behaviour. The prior weight management studies had mostly included dieting behaviour rather than the long-term lifestyle change process from the perspective of the attitudes to the behaviour and psychological approach. Powell et al. (2007) emphasized the need to address the



genetic, environmental, or psychological correlates of body size or shape in the weight control studies. Other authors added the idea that not only behavioural choices are responsible for BMI, but also genetic, hormonal, and metabolic factors (Gomuzzie, 2001; Tataranni & Ravussin, 2002). Therefore it is proposed by experts that individuals are encouraged to accept a range of body shapes and sizes evolving from their natural physiological hunger and satiety needs (Bacon et al., 2002; Bacon, Van Loan, Stern & Keim, 2005; Carrier et al., 1993; Cole, 2006; Savoye, Berry, Dziura, Shaw, Serrecchia, & 2002; Steinhardt et al., 1999; Tribole & Resch, 1995).

Eating for physiological hunger rather than other reasons is one of the main ideas of Intuitive eating. Moreover the similarity of the ideas of Individual Psychology and Intuitive Eating in relation to the congruence of body and mind can be noticed. Based on this congruence as well as the number of supportive findings (as well as contrary ones) and the absence of any research studies on Intuitive Eating in Lithuania, this research included the variable of Intuitive Eating in the proposed conceptual model as a possible significant factor in weight management process. Although there has been found a relationship between Body functions, positive Body Image and Intuitive Eating (Avalos & Tylka, 2006), Van Diest (2007) suggested that additional exploratory studies should include personality variables as possible supportive factors for Intuitive eating model. Therefore, Intuitive eating was included in the model not as one of other weight management behaviours, but as a variable dependent on personality dynamics that might be related to these behaviour and BMI.

To address this suggestion the researcher proposed that the inclusion of lifestyle based on the comprehensive theory of Individual Psychology, that it may enhance the understanding of the variables of BMI, Intuitive Eating and other weight related behaviours (Figure 6).

Following this schema, the researcher hoped to explain the BMI of the subjects of the study. One of the explanations was constructed on the weight management process based on the Social Cognition Models and Adlerian lifestyle themes as possible correlates and moderation variables in this process.

Another explanation was based on Intuitive Eating with Adlerian Lifestyle themes as possible correlates. Moreover, the interrelatedness of these two types of behaviours (traditional weight management behaviour and Intuitive Eating) with the Adlerian lifestyle themes was explored.

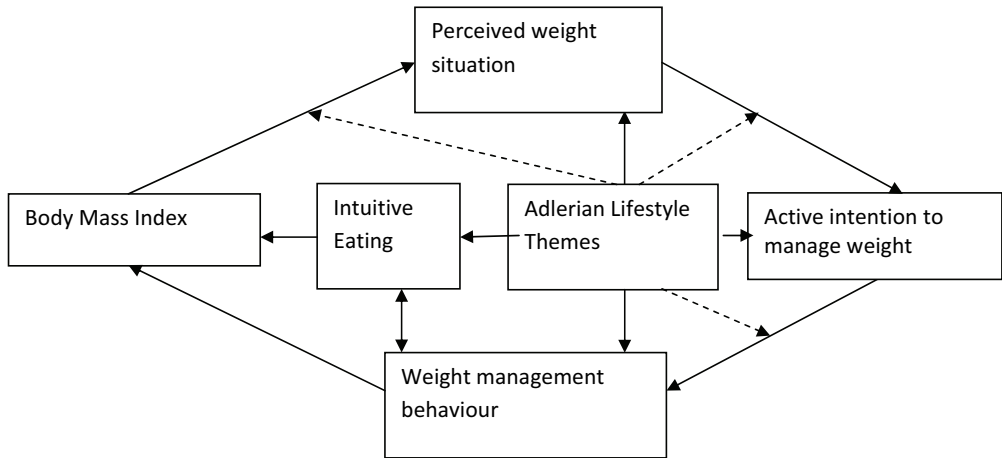


Figure 6. *Weight management process with moderating role of personality (Adlerian Lifestyle) and Intuitive eating as alternative correlate for BMI*

## 1.2. Exploration of factors related to weight management

### 1.2.1. Importance of Personality for weight management

As discussed previously the significance of personality has been investigated more in relation to eating disorder than positive eating attributes (Fairburn, Welch, Doll, Davies, & O'Connor, 1997; Fairburn, Cooper, Doll, & Welch, 1999; Fairburn, Doll, Welch, Hay, Davies, & O'Connor, 1998; Leon, Fulkerson, Perry, Keel, & Klump, 1999; Vohs, Bardone, Joiner, Abramson, & Heatherton, 1999; Tylka, Waldron, Graber, & Brooks-Gunn, 2002). Tylka (2006) supported the negative relationship between intuitive eating and body dissatisfaction, poor interoceptive awareness, pressure for thinness, and internalization of the thin ideal. Thus, many studies supported the relationship between personality attributes and the weight management process. Significant associations of various personality traits have been found with BMI, weight-related behaviour and satisfaction with one's body etc. Several studies with the findings on the solid samples are presented as follow.

A study with 30,722 participants indicated positive association between extraversion and overweight, whereas neuroticism was inversely related to the obesity (Kakizaki et al., 2008).

Results of the study with more than half of the population from four towns in Sardinia, Italy (N=5693) showed that high neuroticism and low conscientiousness were related to both being underweight and obese. High impulsiveness (specifically eating-behaviour items) and low order were related to being overweight and obese according to BMI categories, and abdominal adiposity (waist and hip circumference). The Impulsiveness and Order were supported as

significant predictors of general and central measures of adiposity assessed three years later (Terracciano et al., 2009).

Another study in the United States with 3,496 adults investigated the stereotype that overweight employees are less conscientiousness, agreeable, emotionally stable, and less extraverted than their “normal-weight” colleagues. There was substantial convergence between the results, with findings tending to refute commonly held stereotypes about the personality traits of overweight employees (Roehling, Roehling, & Odland, 2008). Only conscientiousness was positively related to BMI. A higher level of neuroticism was found as a significant predictor of higher scores for cognitive dietary restraint, disinherence and susceptibility to hunger. Conscientiousness was also found to be a positive correlate of cognitive dietary restraint and a higher level of agreeableness was associated with a lower score of susceptibility to hunger. Results also emphasized the other psychological factors, i.e. dysphoria and body esteem, involved in the associations between personality traits and some eating behaviours.

However findings of another study with the Australian adults’ sample of 5265 participants indicated that Extraversion, Agreeableness and Neuroticism were positively and Conscientiousness inversely related to the obesity (Magee & Heaven, 2011). Moreover the same study revealed extroversion as a significant predictor for two-year weight gain.

A recent study with the sample of 15,669 participants indicated the positive association between Conscientiousness and healthier weight. In the women sample neuroticism was related to increased weight, while extraversion had a positive association with being overweight among men. Moreover the moderation role of personality for the actual weight and perception of weight was explored. Individuals higher on Neuroticism tended to see themselves as heavier, whereas Extraversion was associated with seeing oneself as thinner (Suttin & Terracciano, 2014).

There were number of other weight related studies that included Big Five personality traits, yet the findings seem to be contradictory. These contradictory findings of direct relation between personality attributes and body mass index supported the idea by Provencher and colleagues (2008) as well as Suttin and Terracciano, (2014) who suggested that investigating personality through association with other psychological factors, may lead to a better understanding of weight and eating behaviours in overweight and obese women.

Lower self-esteem was found to be associated with overweight clients in a meta-analytic study (Miller & Downey, 1999). The correlation between self-esteem and weight was higher in the studies with self-perceived weight than with actual weight (Miller & Downey, 1999). Moreover, a number of researchers have supported the importance of individual's self-esteem and coping recourses (Fennell, 2004; McInnis, Raspopow, Matheson, & Anisman, 2011).

The role of Adlerian Lifestyle themes measured by BASIS-A in weight management process can be predicted by the findings of the norming study of Lithuanian BASIS-A which indicated the significant relations between Big Five personality traits and Adlerian Lifestyle themes (Gaube, Kern, & Stoltz, 2015). Extroversion was positively related to BSI and negatively to BC lifestyle theme. Conscientiousness was positively related to BSI, GA,WR and negatively to BC. There was significant positive relation between emotional stability and BSI as well as GA and negative with BC lifestyle theme. Agreeableness was found as significantly related to BSI and GA and negatively to TC and BC scales. Openness to experience was positively related to BSI, GA and WR and negatively to BC lifestyle theme.

Summarizing the forgoing contradictory findings of Big Five personality attributes, Self-esteem and Adlerian Lifestyle themes, the conclusion that there is a need for more information in relation to Adlerian Lifestyle, BMI and weight management behaviour was made. Additional information might help to support the research questions for this study.

#### ***1.2.1.1. Implications for the role of Adlerian Lifestyle themes in this study***

Regardless the above findings there appears to be no clear explanation of the way personality is related to weight issue or more specifically the mechanism linking personality and weight management. Some authors suggest the idea that this relation is not a direct one. Elfhag and Rössner (2005) suggest that there is a need for more sufficient studies of association between personality attributes and weight issue. Therefore including Adlerian lifestyle themes in the weight management process may be helpful in the identification one or more of the several mistakes reflected in weight management process.

Since prior findings supported the moderating role of personality for the relation between actual and perceived weight (Suttin and Terracciano, 2014), behavioural intention and actual behaviour (Chatzisarantis & Hagger, 2008), as well as considered importance of personal variables for behavioural intention (Armitage & Conner, 2001) the research proposed that some Adlerian lifestyle themes might contribute to several relationships in weight management process: (1) BMI and perceived weight situation, (2) perceived weight situation and active intention to manage weight, and (3) active intention to manage weight and certain behaviour.

However, some authors argued that what we call healthy eating is not the opposite pole of eating disorder (Tylka, 2006). Due to the contradictory assumptions above and the lack of studies that used BASIS-A in relationship to healthy lifestyle, the role of Adlerian lifestyle

themes measured by BASIS-A<sup>LT</sup> will be explored in relation to weight management process without creating the direct hypotheses. This study will be the first study employing Adlerian ideas in the weight management process with the hope of providing future scholars with the basic information in related to mechanisms linking Adlerian lifestyle with weight management process.

Furthermore, taking into account the congruence of Adlerian ideas and Intuitive Eating, growing interest in this approach in the practice as well as science (Tylka & Wilcox, 2006; Tylka, 2006, 2007; Caldwell, Baime, & Wolever, 2012; Tylka & van Diest, 2013), and, finally, the suggestion by Van Diest (2007) that additional exploratory studies should include personality attributes as possible supportive factors for Intuitive eating model we will explore Adlerian Lifestyle themes as possible determinants of Intuitive Eating. The exploratory study with addressed question of what is the interrelatedness of Adlerian lifestyle themes and intuitive eating variables will be conducted.

### **1.2.2. Importance of other variables for weight management**

Given there are no studies of BASIS-A in relationship to healthy weight management, this study would be an exploratory in nature with the attempt to explain the mechanisms linking Adlerian lifestyle as a personality variable and the weight management process. To achieve this goal, other biopsychosocial variables, such as appearance-related beliefs, perceived social support, marital status, family income, age and parents' weight situation will be taken in account as they might be related to the weight management process and affect the perceived weight situation, active intention to manage weight or weight management behaviour directly or as a moderating variables. The possible role of each of these variables in weight management process will be described.

#### ***1.2.2.1. Appearance related beliefs and weight management***

There might be various types of the body image effect on one's life (Cash & Fleming, 2002). For instance, negative perception of body image might affect eating behaviour for one person while the social relations of another person might be impacted. A number of different constructs make up the term of body image. From the Adlerian perspective poor body image is related to feelings of inferiority. Adler (1927) named feelings of ineffectiveness as inferiority

feelings. Inferiority feelings represent the mistaken appraisals of self-worth that come from discouraging experiences (Ferguson, 1984).

Body image as well as personality attributes have been one of the frequent variables in weight-related research, but as discussed in previous section most studies focussed on eating disorders (Van Diest, 2007). Van Diest (2007) discussed the effect of the internalized thin ideal (based on media) on mental health and well-being. Negative body image has been supported to be a risk variable in the relation to eating disorders, depression, and higher levels of body dissatisfaction (Stice, Nemeroff, & Shaw 1996; Fredrickson & Roberts, 1997; Moradi & Subich, 2002; Agliata & Tantleff-Dunn, 2004).

Lithuanian psychologists were also interested in the related topic of eating disorders. Results of the study on body image and it's relatedness to some demographics in the sample of young adults showed that women are more concerned with their weight than men, younger participants related their self-worth with their looks more often than older ones and finally woman who had a partner used to evaluate their appearance better than those without a partner (Miskinyte & Bagdonas, 2010). There were also some studies of the negative eating habits, for example women who were dissatisfied with their body image diet more often and more likely to display bulimic behaviour (Miskinyte, Perminas, & Sinkariova, 2006). Another important finding of the same study revealed the relationship between the experienced parental physical and psychological abuse and anorexic behaviour and dieting (Miskinyte, Perminas, & Sinkariova, 2006).

Moreover results of the study that investigated the relationship between personality traits, body image attitudes and subjective quality of life using NEO Five Factor Inventory (NEO-FFI Costa, McCrae, 1992) indicated significant findings on Neuroticism, Conscientiousness, and Extraversion as related to attitudinal body image components (Miskinyte, 2011).

Van Diest (2007) indicated the lack of studies in relation to dieting, weight preoccupation and eating disorders that would focus on the intuitive eating. He identified the association between internalizing media ideals of thinness and lower Intuitive eating behaviour.

According to the ideas of IP, childhood experience contributes to the personality dynamics and behaviour. Therefore cognitive component of body image might support the weight management process with additional information that could help to support or deny the importance of Adlerian lifestyle. Two cognitive components of body image (appearance schemas) of appearance-related attitudes including importance of the appearance and motivation to take care of one's appearance might contribute to the weight management process as the correlates as well as moderators in several relations. Since poor body image was supported as related to desire to lose weight, poorer appearance schemas might increase the possibility that

individual will report active intention to manage his/her weight. On the other hand poor body image was found as a risk variable in the relation to eating disorders (Stice, Nemeroff, & Shaw 1996; Fredrickson & Roberts, 1997; Moradi & Subich, 2002; Agliata & Tantleff-Dunn, 2004). Thus in this study poor appearance schemas might increase the possibility of incorrect perception of weight as higher than it is in reality and choosing the controlling way to cope with weight issue rather than healthy weight management behaviour.

#### *1.2.2.2. Perceived social support and weight management*

Social Cognitive models and Individual Psychology emphasize the social context of individual's life and behaviour, such as social norms or social surrounding where certain personality attributes are formed. However, perceived social support is one of the variables that might be considered in the frame of this study as important additional information (situational factor) related to weight management process.

In the terms of Adlerian psychology, perceived high social support might be related to some part of Adler's construct of the need to belong or social interest (Adler, 1927). According to Curlette and Kern (2010) meeting the need to belong is important in a wide variety of situations. The present investigator believes weight management might be one of these situations.

Verheijden with his colleagues (2005) summarized the broad range of concepts of social support in previous studies (Cohen & Wills, 1985; Vaux, 1988; Antonucci & Johnson, 1994; Cohenetal, 1994; Langford et al., 1997). Terms of structural and functional support were used and described. Structural support represents the availability to get the support from other people or being socially integrated. However, in this study functional support was operationalized as a subjective measure or perceived social support.

Sperry with colleagues (2013) emphasized that the individual who tries to control his/her weight is not isolated, therefore it is important to understand and include the role of his/her social surrounding in weight management process. Yet such an inclusion would refer to structural social support but not necessary for perceived social support, which was found to be mostly related to health issue (Wethington & Kessler, 1986).

Perceived social support was found to be associated with body image (Steese et al., 2006). Stuart and Davis (1972) found that spousal support was related to successful weight loss, weight maintenance and weight loss program compliance. Brownell with his colleagues (1978) supported the importance of spouses' attendance in the weight loss sessions and trying to modify

eating habits together with their spouse. Nevertheless, Teixeira with her colleagues investigated the possible predictors for successful weight loss and revealed no significance of social support for successful weight loss (Teixeira et al., 2005).

Many researchers revealed the importance of social support for successful weight management, yet findings are not consistent across studies. The same as with personality, there is no clear explanation of the mechanism linking social support and BMI when we are talking about the perceived general social support, not structural support for certain behaviour. It seems reasonable that social support could play a moderating role in some weight management processes. Perceived social support might decrease the possibility incorrect perception of weight and increase a possibility of healthy weight management behaviour. One might propose that social support as a satisfied need to belong might encourage person to perform planned changes related to weight issues. However, social support could be considered as a risk factor of having no active intention to manage weight if support is not targeted to the specific weight issues.

#### *1.2.2.3. Marital Status, family income and weight management*

With the purpose to identify the importance of Adlerian lifestyle themes in the weight management process, the researcher included social-demographic characteristics of marital status and family income.

**Marital status.** Marital status has been supported as a significant factor in relation to self-body satisfaction. The connection of this factor is not so clear in relation to BMI and perceived weight situation or perceived weight situation and active intentions to manage weight (Heavey, Parker, Bhat, Crisp, & Growers, 1989; Miskinyte & Bagdonas, 2010).

The researcher proposed that having a partner is not an automatic encourager for the individual to gain or loss weight and is more dependent on the quality of the relationship. For example several studies found that marital dissatisfaction increased the possibility of eating disorders (Heavey, Parker, Bhat, Crisp, & Growers, 1989; Van den Brouke & Vandereycken, 1987).

Miskinyte and Bagdonas (2010), however, found that woman who were in intimate relationships perceived less negative emotions as it relates to their body and generally have better perception of appearance. At this point there are no studies that support the relationship of marital status, weight issues and lifestyle dynamics.



**Family income.** Although Adler and his theory of Individual Psychology did not address the importance of money in person's life, this demographic variable has been included consistently in other studies related to weight issues.

In relation to weight issue, higher income has been supported as related to lower body mass index (Thompson et al., 2008) as well as significant predictor for more successful weight control (Jeffery & French, 1999).

Although family income as well as weight issues might be a result of other factors, the author proposed that higher income might may be a demographic variable that would be additive in the study.

#### *1.2.2.4. Age, Parents' weight and weight management*

With the same purpose to identify the role of personality dynamics in weight management process, certain demographic-biological information related to age and heritability (parents' weight) was explored as the context variables.

**Age.** A person's age is a biological variable that cannot be ignored in weight related studies. Broad range of participants' age increases the importance to include and explore this variable in the model. However the researcher of this study does not think, that age variable is related to previously mentioned mistakes in weight management process; however age itself (as biological variable) might explain significant account of the variance of BMI.

**Parents' weight or heritability.** In line with various personality or social attributes, the possible importance of genetic variables such as heritability that is related to one's weight situation should be identified.

Some research indicated that parental body mass index (BMI) was related to the increased child's weight (Beech et al., 2003; Rice, Thombs, Leach, & Rehm, 2008; Thompson et al., 2008) and lower success in weight control (Ogden, 2010; Wamsteker et al., 2005). However other authors argue that there is only a few exceptions such as the FTO gene (Loos & Bouchard, 2008), leptin and the MC4 gene variants (Mutch & Clement, 2006), which can be named as genetic predictors of obesity (Stubbs et al., 2011).

There are several explanations that have been presented by experts that rebuke the genetic connection with weight issues. The first rebuttal is that behavioural habits which we adopt from our parents are more important variable than genetic ones (Cutting, Fisher, Grimm-Thomas, & Birch, 1999; Fisher & Birch, 1999 Birch, 1999; Birch & Fisher, 2000). Parent's role with their critical messages about appearance or eating restrictions is also important in forming the negative body image or eating disorders (Striegel-Moore & Kearney-Cooke, 1994; Smolak,

Levine, & Schermer, 1999). This explanation is parallel to the Adlerian point of view that downplays genetic predispositions and highlights the importance of the family origin hypothesis. Belangee, Sherman and Kern (2003) stated that growing up in the surrounding where being thin is valued, increases the possibility to develop problematic eating behaviour. Moreover the family atmosphere that includes morals, values, opinions and communication styles plays the most important role in development of child's lifestyle (Belangee, 2006). Simply said, from our family of origin we learn to think and behave in certain way and these learned habits play a more important role in our lives than genes.

A second explanation presented by Hilbert and colleagues (2009) was that the main variable in relation to genetics and the weight outcome was indicating causal attributions of obesity to genetic/biological factors. In other words if and overweight person thinks that he or she was overweight because of genetics it increased the possibility that he or she will struggle to solve the weight issue (Frosch, Mello, & Lerman, 2005; Harvey-Berino et al., 2001; Ogden, 2000; Wamsteker et al., 2005). These results were relevant to a number of other findings which supported the association of the way one perceives the causation of a health condition and health behaviour as well as health problems (Bandura, 1997; Cameron & Leventhal, 2003; Marteau & Weinman, 2006). Social cognitive theory (Bandura, 1997) might explain the mechanisms linking causal attributions of one's increased BMI to genetics and weight management. In the cognitive theory, self-efficacy or perceived ability to cope effectively (Bandura, 1986), is a main determinant of coping behaviour. Therefore if the person thinks that his/her weight is determined by genetic factors, it may decrease his/her self-efficacy and intention to try to control weight as well. These results and ideas support the importance of perceived behavioural control described in the theory of planned behaviour.

Lubrano-Berthelie and Clement (2005) indicated that it will be a challenge to support low relatedness between genetics and obesity in the future research. Thus in this study parents' weight as possible correlate and moderator variable in weight management process and attempt to isolate a mechanisms linking higher parents' weight and higher BMI. The researcher proposed that perceived higher parents' weight might increase the possibility of misperceived weight situation, less intention to manage weight and being less involved in healthy behaviour. However the author will explore the predictive value of parents' weight in BMI.

### **1.3. Constructing model for possible explanation of weight management:**

#### **Summary of the literature analysis**

The researcher in this study has presented and explained weight management process that included Adlerian lifestyle as possible correlate and moderator in weight management process as well as correlate of Intuitive Eating. Biological variables of age and parent's weight together with behavioural variables (healthy eating, good eating habits, physical activity, weight controlling behaviour and intuitive eating) may be possible predictors for BMI. The author has also explained the possible roles of other biopsychosocial variables in this weight management process (as possible risks or deterrents of (1) less correct perception of weight situation, (2) incongruence between perceived weight and the intention to manage weight (decrease the relation between perceived higher weight and intention to manage weight), and (3) not corresponding with healthy behaviour to the active intention to manage weight (decrease the relation between the intention to manage weight and healthy behaviour)(Figure 7).

In this study the researcher will explore the variables and relations from this research scheme. First, each relation in the weight management process without correlates or moderating variables will be explored. Second, moderators and correlates will be included and analysed in relation the three previously described mistakes of weight management. The construct of Intuitive Eating as it relates to Healthy behaviour, Adlerian lifestyle and BMI will be analysed. Finally, a predictive model will be created to attempt to explain a significant account of the variance for BMI.

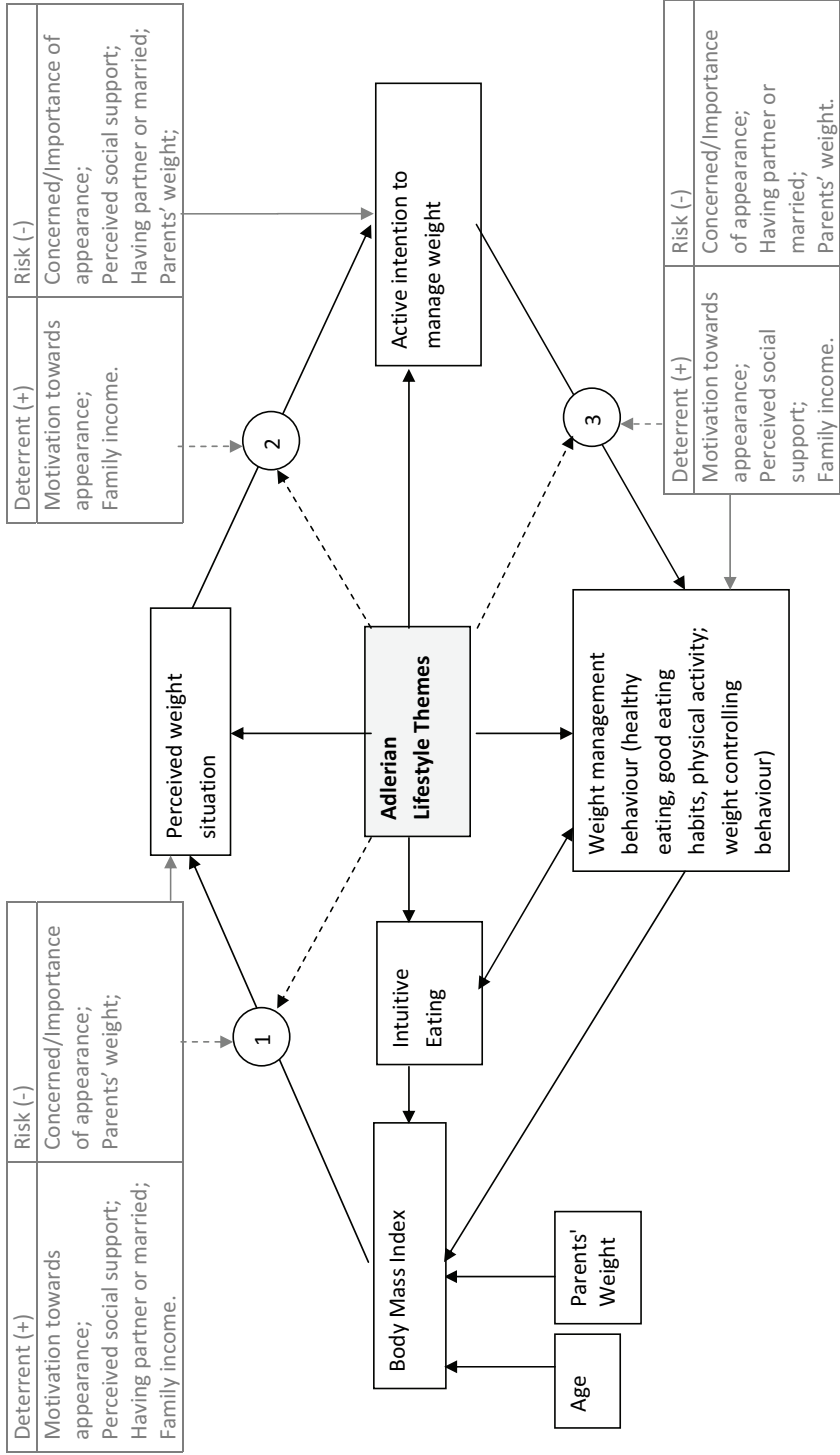


Figure 7. Research scheme of weight management process with correlates and moderating variables

Note. 1 - incorrect perception of weight; 2 - incongruence between perceived weight and intention to manage weight; 3 - healthy behaviour does not correspond to the intention to manage weight.

## 2. RESEARCH OF ADLERIAN PERSONALITY ATTRIBUTES IN RELATION TO WEIGHT MANAGEMENT

### 2.1. Research methods

#### 2.1.1. Sample and procedures

The research sample of this study consisted of various age healthy women not under the treatment condition.

**Rationale for a sample.** The value of selecting a non-clinical women sample with a large age range can be supported for the following reasons:

(1) There is a lack of weight management studies with non-clinical populations (Brownell & Rodin, 1994; Stubbs et al., 2011).

(2) The majority of existing weight related studies have been conducted with college age students and thereby limits the generalizability of the findings (Stubbs et al., 2011). The present study included various age participants with families and various occupations.

(3) A final reason for the selection of this sample was the supporting evidence that women in general have more concern for weight, appearance, pressure in society to look a certain way related to weight; therefore women experience more psychological issues that men related to weight control (Ball, Mishra, & Crawford, 2003; Neumark-Sztainer, Sherwood, French, & Jeffery, 1999; White, O'Neil, Kolotkin, & Byrne, 2004).

**Data collection procedures.** A specialized platform for online data collection [www.apklousa.it](http://www.apklousa.it) was employed to collect the data for this research. The data collection began in April 2014 and was completed in September 2014. Invitations to participate in the study were sent to various online forums, discussion groups etc. Several incentives for participation in the study were employed. Incentives included individual feedback on the BASIS-A Inventory, an invitation to a seminar on Individual Psychology and motivation, and participating in a lottery with two prizes including the coupon for an individual/family photo session and the coupon for a purchase at a local mall. The platform provided the researcher with the information about the response rate of the questionnaire. From 6980 people who accessed the on line survey, 1188 (17.2%) of the participants completed the survey.

Hewson with colleagues (2003) suggested that the problems related to sampling with the on line approach should be addressed so as to support generalization of the findings. However a number of studies supported that demographic variables do not differ in Internet and non-Internet samples (Smith & Leigh, 1997, Krantz et al., 1997) and the psychometric properties of the questionnaires filled online and on paper had no significant differences (Stanton, 1998;

Buchanan & Smith, 1999). However as of this date there are not enough studies to support or not support the on line data collection approach.

**Sample description.** Selection of participants was decided on the following criteria as a way of neutralizing the biological factors that could have impacted results of the study. The criteria was the female participants were not expecting, did not have a baby one year of age or younger, and had not been diagnosed with a disease that could impact their metabolism or physical activity. 784 women respondents met the criteria defined by the author of this study.

The age of women sample ranged from 18 to 60 with the mean of 32.43 (SD = 9.798) and was moderately positive skewed (0.714) (see Table 1).

*Table 1. Demographic characteristics of the research sample*

Characteristic	N	%
BMI		
Decreased	59	7.5
Normal	543	69.3
Increased	182	23.2
Marital Status		
Married	311	39.7
Lives with a partner	99	12.6
Has a partner	115	14.7
Divorced	67	8.5
Widower	6	0.8
Single	186	23.7
Education		
Basic	6	0.8
Secondary	60	7.7
High school	48	6.1
Unfinished university or relevant degree	94	12.0
University degree or other relevant education	555	70.8
Other	21	2.7
Children		
Has	365	46.6
Does not have	419	53.4

*Note.* N = number of respondents, % = percentage of respondents

The average Body Mass Index in the sample was 22.73 (ranging from 14.53 to 51.54 with a SD= 4.00). The women were divided into the categories of BMI defined by World Health Organization, thus the numbers of underweight, normal weight and overweight woman as well as further demographic information in relation to the research sample is presented in the Table 1.

Approximately half of the participants were married, lived with a partner and had children. Over 70 percent of the women were highly-educated. Three quarters of the research sample were women with BMI in normal range, and almost one quarter of the women reported and elevated BMI.

### 2.1.2. Measures

**Demographic information** included age, marital status, children, education, income, perceived parents' weight situation.

**Personality attributes** were measured by the Basic Adlerian Scales for Interpersonal Success- Adult Form (BASIS-A) (Wheeler, Kern & Curlette, 1993). The 65-items BASIS-A Inventory was designed to assess five lifestyle themes: Belonging/Social Interest, Going Along, Taking Charge, Wanting Recognition, and Being Cautious and the five supporting scales of harshness, entitlement, liked by all, striving for perfection and softness. Each item is a single sentence asking the participant to respond, "When I was a child, I..." and to rate their response on the scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with the midpoint (3) representing *indifferent*. Seventeen items were reverse scored because of negative phrasing. The back forward translation of the instrument was completed following guidelines presented by Hambleton, Merenda and Spielberger (2005), van Widenfelt et al. (2005) and Maneesriwongul and Dixon (2004). The research studies on Lithuanian samples have been completed and published in peer reviewed journals. The studies supported the internal reliability of the instrument (Liesiene et. al., 2010; Astrauskaite & Kern, 2011; Jonyniene & Kern, 2012; Kazakavičiūtė et al., 2013; Gaubé & Kern, 2015). Cronbach's alpha in this study of the all main scales was 0.730 and for primary scales ranged from 0.787 to 0.890. The coefficient of the agreement of the HELP Scales had a range from 0.84 to 0.95 in the normative study (Gaubé, Kern, & Stoltz, 2015).

**Intuitive Eating** was measured by the Intuitive Eating Scale-2 (IES-2) (Tylka & Van Diest, 2013). The 23-items IES-2 was constructed from the original Intuitive Eating Scale (Tylka, 2006) with an additional component. The final scale was designed to measure four components of Intuitive Eating: (1) Unconditional Permission to Eat (UPE) which represented individual's willingness to eat when hungry and avoid labelling certain food as forbidden, (2) Eating for Physical Rather than Emotional Reasons (EPR) which represented individuals' patterns of eating when physically hungry verses emotional distress or boredom, (3) Reliance on Hunger and Satiety Cues (RHSC) which identified individuals' who trusted their internal signals of hunger and satiety to guide the behaviour, and, a final component of Body-Food Choice Congruence (B-FCC), which measures the extent to which individuals match their food choices with their bodies' needs. The permission to translate the instrument to the Lithuanian language was approved by the author. Procedures of back-forward translation were conducted. A pilot study with student group (N=20) was conducted to identify reliability of scales of the IES-2. The

results indicated high internal reliability of these scales ranging from 0.851 to 0.929. The UPE scale yielded a Cronbach's alpha= 0.629. In the present study the Cronbach's alpha was 0.877 for the total 23-item IES-2. Internal reliability of UPE was 0.687, 0.900 for EPR, 0.903 for RHSC, and 0.772 for B-FCC.

**Appearance related beliefs** were evaluated by Appearance Schemas Inventory– Revised (ASI-R) (Cash, 2003) was secured from the website: [www.body-images.com](http://www.body-images.com) as well as several others instruments related to Body Image. However, with the author's permission, the translated Lithuanian version of the instrument (Miskinyte, 2010) was used. ASI-R is a 20-items measure for appearance related beliefs and importance in one's life, the cognitive aspect of body image. Self-Evaluative Salience (12 items) indicated individual's certain beliefs or assumptions about the importance, meaning, and influences of appearance in his/her life. Motivational Salience (8 items) was a measure for the attendance in appearance management behaviours. The Cronbach's alpha for the total 20-item ASI-R was 0.879; 0.836 for Self-Evaluative Salience and 0.827 for Motivational Salience.

**Perceived social support** was measured by Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, Farley, 1988). This 12-items scale measures 3 sources of perceived support: family, friends and significant others. However as for context variable, only general score of MSPSS was counted and included in the study. Cronbach for the scale was 0.926.

**Eating habits** were measured by two scales constructed for this study. The Healthy Eating scale of 9 items was created following the recommendations for consumption of the certain food/healthy eating presented in the methodological book for healthy lifestyle (Astrauskienė et al., 2011). The Healthy eating scale included questions about the consumption of various healthy foods such as grains and vegetables each day, avoiding fat food, replacing fat meat with leguminous vegetables, fowl or fish, choosing milk products with less fat, choosing food with less sugar, decreasing intake of salty foods, and drinking two litres of liquid each day. The Cronbach's alpha for the Healthy eating scale was 0.719.

The scale of Good Eating habits was an inverse measure for eating after 7 p.m., eating by TV or computer, eating fast-food and overeating. These variables were extracted from various studies that analysed eating behaviour related to weight issue. The Cronbach's alpha for the 4-items Good Eating scale was 0.569 which indicated poor but appropriate for a group measure internal reliability (Schmitt, 1996). However the findings related to good eating should be interpreted carefully.



**Physical activity** was measured by Godin Leisure-Time Exercise Questionnaire (Godin & Shephard, 1985, 1997). A number of reliability and validity studies supported this instrument as suitable to measure physical activity (Godin & Shephard, 1985; Sallis et al., 1993; Jacobs et al., 1993; Miller, Freedson, & Kline, 1994). Participants were asked to report how many times during the 7 days period they were involved in strenuous, moderate and mild exercise. The level of physical activity was counted by the formula  $9 \times \textit{strenuous} + 5 \times \textit{moderate} + 3 \times \textit{mild}$ .

**Weight controlling behaviour** scale was created for this study based upon a literature review and included 8 items related to counting calories, planning meals, consumption of meal substitute or weight control supplements, fasting, strict dieting, consultation with a dietician, and weighing oneself. The Cronbach's alpha for this scale was 0.687, which indicated poor but appropriate for a group measure internal reliability (Schmitt, 1996).

**Perceived weight situation** was measured by one question extracted from the two-question scale The Multidimensional Body-Self Relations Questionnaire (MBSRQ)(Cash, 2000). Two questions from MBSRQ were analysed that included (1) how the individual perceives his/her weight situation and (2) how the individual perceives other's opinion about his/her weight situation. The possible answers were (1) very underweight (2) somewhat underweight (3) normal weight (4) somewhat overweight (5) very overweight.

**Active weight management intention** was assessed by asking participants' "Which of the following best describes you at the moment?" The response options were: (1) I am actively doing things to gain weight at the moment; (2) I am actively doing things to try to avoid gaining weight at the moment; (3) I am actively doing things to try to lose weight at the moment; or (4) I am not doing anything in particular for my weight at the moment (Jeffery et. al, 2013).

**Body Mass Index (BMI)** was calculated from two self-reported measures - height and weight using the formula  $BMI = \textit{weight (kg)} / \textit{height}^2 (m^2)$ . Self-reported measures would likely be a reliable alternative to the measured height and weight (Ali, Minor, & Amialchuk, 2013). The BMI categories presented by the World Health Organization were regrouped into three categories of underweight (BMI less than 18.5), normal weight (BMI from 18.5 to 24.99) and overweight and obese (BMI 25 and over) woman (see Table 2). As mentioned previously, underweight woman were not included in all the analysis.

Table 2. Regrouping of BMI categories provided by World Health Organization

BMI range – kg/m <sup>2</sup>	Category	New category and BMI
less than 15	Very severely underweight	Underweight – less than 18.5
from 15.0 to 16.0	Severely underweight	
from 16.0 to 18.5	Underweight	
from 18.5 to 25	Normal (healthy weight)	Normal weight - 18.5-24.99
from 25 to 30	Overweight	Overweight and obese - 25 and over
from 30 to 35	Obese Class I (Moderately obese)	
from 35 to 40	Obese Class II (Severely obese)	
over 40	Obese Class III (Very severely obese)	

Note. BMI = body mass index

### 2.1.3. Selection of the statistical procedures

**Missing data.** The questionnaire was created online with the employed rule of "must", despite several open questions about one's height and weight, to report to every question. Thus, only one participant did not report her weight, therefore was not included in the analysis.

**Normality test.** Prior to analysing the data researcher explored the distribution of each of the interval variables with the Kolmogorov-Smirnov test. The variable of Intuitive eating was distributed normally, while others did not fall under the normal distribution. The Skewness of each of the variables was calculated. Findings revealed that the major distributions were approximately symmetric (skewness ranged from -0.5 to +0.5). However there were several moderately skewed variables that included the BSI, BC, weight controlling behaviour, and perceived social support, (skewness were in one of the ranges: from -1 to -0.5 or from 0.5 to 1). Moreover there were two highly skewed variables that included BMI and physical activity (Table 3). The data was transformed according to the logarithmic and square root transformations, following the guidelines by Tabachnick and Fidell (2007) and Howell (2007).

After the transformations most of the previously moderately skewed variables became approximately symmetric (BSI, BC, Perceived Social support). Two of the highly skewed original variables became approximately symmetric, however, skewness of the physical activity decreased but stayed highly skewed. Skewness of the weight controlling behaviour decreased to moderate level. From this analysis the researcher made the decision to exclude the outliers from the original scales of weight controlling behaviour and physical activity in analysis. The skewness was 0.745 for weight controlling behaviour and 0.855 for physical activity after outliers were excluded. All the other transformed variables were included in the further analysis.

Table 3. Skewness before and after the transformation of initially skewed variables

		Moderately skewed variables (Sqrt transformation)				High skewed variables (LOG transformation)	
		BSI	BC	CB	SOC	BMI	PA
Before transformation	S	-0.766	0.534	0.894	-0.808	1.667	1.952
	K	0.804	-0.458	0.681	0.264	5.483	9.522
After transformation	S	0.040	0.199	0.575	0.337	-0.005	-1.343
	K	0.083	-0.837	-0.160	-0.493	7.610	1.372

Note. S – Skewness; K – Kurtosis; Sqrt = square-root; LOG = Logarithmic; BSI = Belonging/Social interest; BC = Being Cautious; CB = Weight controlling behaviour; SOC = perceived social support; BMI = Body mass index; PA = physical activity.

A Pearson correlation was conducted on the original and transformed variables. A negative relationship was revealed between the original and transformed BSI scales as well as original and transformed scale of perceived social support. These negative relations are important for the interpretations of the results, because for example negative correlation between transformed BSI and higher weight would mean that lower BSI is related to higher weight.

**Statistical procedures.** The data was analyzed using the IBM SPSS Statistics 20. Data was transformed in order to decrease the skewness of some mostly skewed interval variables and outliers of some behaviour variables were excluded, therefore parametric criteria were chosen for statistical analysis. The statistical methods included descriptive statistics and frequencies, Cronbach's alpha, Pearson correlation coefficient and ANOVA. Moreover a Hierarchical linear regression and Multinomial logistic regression analysis was used to explore the relationship and moderation effect of the Adlerian Lifestyle themes for BMI, perceived weight situation, intention to manage weight and weight management behaviour in the context of other biopsychosocial variables. Analysis was conducted on the total female sample (N=784), normal weight group (N=543) and increased BMI group (N=182).

## 2.2. Results

Means, standard deviations and correlations of the variables are presented in Appendix 1. Body mass index was significantly related to several Adlerian lifestyle themes and supporting themes including BSI, TC, BC, and Striving for perfection. Significant positive correlations of BMI to weight controlling behaviour, age and parents' weight were supported. The BMI was negatively related to all the measures of Intuitive eating BMI was inversely related to higher motivation to take care of the appearance and perceived higher social support.

### 2.2.1. Association between body mass index and perceived weight situation

The first analysis of this study was to explore the relation between BMI and perceived weight situation. Results in Table 4 indicated that BMI accounted for 38.8 percent of the variance of perceived weight situation in the regression model (see Table 4).

Table 4. Linear regression analysis of BMI on perceived weight situation,  $F=497.382$ ,  $p=0.000$ ,  $R\text{ Square} = 0.388(N=784)$

Variable	B	SE	95% CI		t value	p-value
(constant)	-4.768	0.375	5.504,	-4.032	-12.724	0.000
BMI	6.182	0.277	5.638,	6.726	22.302	0.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval; dependent variable = perceived weight situation

Additionally, association between BMI and perceived weight situation was explored separately in the three groups of women according to their BMI and weight change during the past year and weight-related behaviour changes during the past year. As presented in Appendix 2, BMI accounted for the largest variance of perceived weight situation (1) in the group of women with increased weight, (2) in the group of women who reported weight loss during last year, (3) in the group of women who stayed with the same weight-related habits during the last year in compare to the other groups in each of the analysis. However, one of the tasks of this study was to find the relation between Adlerian lifestyle and correctly perceived weight, therefore additional statistical analysis was conducted.

### 2.2.1.1. Correlates of incorrectly perceived weight situation

The first research question of this study was to explore the role of Adlerian personality attributes/lifestyle themes related to correct perceptions of weight. To address this question, the first task was to identify those participants who used to evaluate their weight correctly or viewed them incorrectly as having lower or higher weight in compare to the category of their BMI.

Two questions about perceived weight situation were included. BMI had a stronger relation with perceived others opinion about one's weight ( $r=0.681$ ,  $p=0.000$ ) than with an individually perceived weight situation ( $r=0.624$ ,  $r=0.000$ ). Crosstabs showed that underweight women used to perceive their weight more correctly if were reporting others' opinion about their weight situation. However, overweight women individually perceived their weight more correctly than reporting opinion by others' (see Table 5 and Appendix 3).

Table 5. The distribution of perceived weight situation in three groups of decreased, normal and increased BMI (N=784).

Correlation between perceived weight situation and BMI: $r=0.624$ , $p=0.000$		I think that my weight is...					Total
		Very decreased	A little decreased	Normal	A little increased	Very increased	
Groups of BMI decreased	Count	4	16	34	5	0	59
	% within three groups of BMI	6.8%	27.1%	57.6%	8.5%	0.0%	100.0%
	% within I think that my weight is.	80.0%	53.3%	10.4%	1.4%	0.0%	7.5%
Groups of BMI normal	Count	1	14	285	233	10	543
	% within three groups of BMI	0.2%	2.6%	52.5%	42.9%	1.8%	100.0%
	% within I think that my weight is.	20.0%	46.7%	87.4%	65.8%	14.5%	69.3%
Groups of BMI increased	Count	0	0	7	116	59	182
	% within three groups of BMI	0.0%	0.0%	3.8%	63.7%	32.4%	100.0%
	% within I think that my weight is.	0.0%	0.0%	2.1%	32.8%	85.5%	23.2%
Total	Count	5	30	326	354	69	784
	% within three groups of BMI	0.6%	3.8%	41.6%	45.2%	8.8%	100.0%
	% within I think that my weight is.	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

According to the crosstabs analysis an additional variable with three categories was created. There were 22 women who perceived themselves as being in lower weight category in compare to their BMI (see Table 6).

Table 6. The distribution of correctly-incorrectly perceived weight situation (N=784).

Groups	Frequency	Percent	Valid Percent	Cumulative Percent
perceives lower weight	22	2.8	2.8	2.8
correct perceived weight	480	61.2	61.2	64.0
perceives higher weight	282	36.0	36.0	100.0
Total	784	100.0	100.0	

Further ANOVA analysis was conducted to compare the lifestyle themes of women in those three categories. No significant differences of Adlerian lifestyle themes among the categories were supported (see Appendix 4) in total female sample.

A multinomial logistic regression analysis of lower and higher perceived weight situation was conducted in the total female sample. Correctly perceived weight was chosen as a reference category and personality attributes as well as other biopsychosocial variables of both incorrect perceptions (seeing oneself as lower weight or seeing oneself as higher weight) were compared to the group of correctly perceived weight. The model was included with five major Adlerian lifestyle scale themes and five supporting scales and other biopsychosocial variables. No significant association was found (see Table 7).

However, several biological variables were related to incorrectly perceived lower weight. Results of the multinomial logistic regression analysis indicated that in the context of personality and other biopsychosocial variables, women's reported higher age and parents' lower weight were related to incorrectly perceived lower weight. Moreover, some psychosocial variables were supported related to incorrectly perceived higher weight. Younger women who reported a concern with their appearance and perceived less social support evaluated themselves incorrectly as being of higher weight (Table 7).

Table 7. Multinomial logistic regression analysis for incorrect weight perception, Chi-Square=97.599, p=0.000, Cox and Snell=0.117 (N=784)

	B	SE	Wald	Sig.	Exp(B)	95% CI	
perceives lower weight							
Intercept	-.735	4.798	.023	.878			
BSI	.005	.057	.007	.932	1.005	.898	1.125
GA	-.029	.058	.250	.617	.971	.866	1.089
TC	.020	.049	.171	.679	1.021	.927	1.124
WR	.040	.106	.141	.708	1.041	.845	1.281
BC	.035	.042	.667	.414	1.035	.953	1.125
H	-.099	.120	.680	.409	.906	.716	1.146
E	.017	.062	.072	.789	1.017	.900	1.149
L	-.078	.168	.213	.645	.925	.665	1.287
P	-.038	.089	.186	.667	.963	.809	1.145
S	-.022	.105	.045	.832	.978	.797	1.200
Appearance	-.748	.466	2.570	.109	.473	.190	1.181
Motivation	.360	.410	.772	.379	1.434	.642	3.202
Soc	.042	.236	.032	.857	1.043	.657	1.657
Parents	-.608	.236	6.621	<b>.010</b>	.545	.343	.865
Age	.047	.023	4.304	<b>.038</b>	1.048	1.003	1.095
Marital	-.034	.257	.017	.895	.967	.585	1.598
Income	.114	.192	.356	.551	1.121	.770	1.633
perceives higher weight							
Intercept	-.053	1.788	.001	.977			
BSI	.000	.020	.000	.993	1.000	.961	1.041
GA	.017	.023	.537	.464	1.017	.973	1.063
TC	.000	.017	.000	.993	1.000	.967	1.034
WR	.020	.036	.295	.587	1.020	.950	1.095
BC	.017	.015	1.202	.273	1.017	.987	1.048
H	-.018	.042	.180	.671	.982	.904	1.067
E	-.001	.022	.001	.976	.999	.956	1.044
L	-.037	.057	.418	.518	.964	.862	1.077
P	-.018	.030	.371	.542	.982	.927	1.041
S	.001	.037	.001	.979	1.001	.931	1.077
Appearance	.369	.158	5.485	<b>.019</b>	1.447	1.062	1.970
Motivation	.169	.138	1.505	.220	1.184	.904	1.551
Soc	-.198	.079	6.353	<b>.012</b>	.820	.703	.957
Parents	-.048	.070	.469	.493	.953	.830	1.094
Age	-.057	.010	33.217	<b>.000</b>	.944	.926	.963
Marital	.172	.096	3.244	.072	1.188	.985	1.432
Income	.042	.072	.348	.555	1.043	.907	1.200

Note. B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval for Exp(B); BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

Personality attributes and other biopsychosocial variables were analyzed in various weight perception groups among normal weight women in the next section.

2.2.1.1.1. Correlates for incorrectly perceived weight situation with the group of women with normal BMI

Multinomial regression analysis of incorrectly perceived lower and higher weight in compare to the correctly perceived weight was conducted among normal weight women. The same Adlerian lifestyle themes, supporting scales and biopsychosocial factors were included as independent variables in the model. BMI was an additional independent variable, to control the objective information of weight which might be related to ability to perceive weight correctly. Correlates of perceived lower weight are presented in the table 8.1.

Table 8.1. Multinomial logistic regression analysis: for incorrectly perceived lower weight in the group of women with normal BMI, Chi-Square=258.98, p=0.000, Cox and Snell=0.379 (N=543)

	B	SE	Wald	p value	Exp(B)	95% CI	
Intercept	45.153	13.957	10.466	.001			
BMI	-2.231	.606	13.538	<b>.000</b>	.107	.033	.353
BSI	-.017	.095	.031	.860	.983	.816	1.185
GA	-.168	.094	3.226	.072	.845	.704	1.015
TC	.004	.067	.004	.951	1.004	.881	1.144
WR	.062	.175	.128	.720	1.064	.756	1.499
BC	-.004	.068	.003	.958	.996	.872	1.138
H	-.145	.176	.673	.412	.865	.613	1.222
E	-.086	.099	.758	.384	.918	.756	1.113
L	-.026	.279	.009	.924	.974	.564	1.682
P	.097	.153	.402	.526	1.102	.817	1.486
S	-.064	.172	.140	.708	.938	.669	1.314
Appearance	-.820	.707	1.346	.246	.440	.110	1.760
Motivation	-.049	.576	.007	.932	.952	.308	2.946
Soc	.244	.412	.351	.554	1.276	.569	2.862
Parents	-.458	.334	1.877	.171	.633	.329	1.218
Age	.143	.044	10.421	<b>.001</b>	1.154	1.058	1.259
Marital	-.157	.440	.127	.721	.855	.361	2.024
Income	-.051	.328	.024	.878	.951	.500	1.808

Note. B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval for Exp(B); BMI = Body Mass Index; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

Results indicated that no Adlerian lifestyle themes were related to incorrectly perceived weight among women with normal weight. However, there were other variables, such as lower BMI and higher age that were found as significant correlates of incorrectly perceived lower weight in compare to correctly perceived weight.

Table 8.2 includes information about the correlates for the intention to lose weight.



Table 8.2. Multinomial logistic regression analysis: for incorrectly perceived higher weight in the group of women with normal BMI, Chi-Square=258.98, p=0.000, Cox and Snell=0.379 (N=543)

	B	SE	Wald	p value	Exp(B)	95% CI	
Intercept	-16.324	2.864	32.495	.000			
BMI	.811	.082	98.350	<b>.000</b>	2.249	1.916	2.640
BSI	.019	.028	.467	.494	1.019	.965	1.075
GA	.000	.031	.000	.991	1.000	.942	1.062
TC	-.009	.024	.128	.721	.992	.946	1.039
WR	.000	.049	.000	.994	1.000	.909	1.101
BC	.003	.021	.024	.877	1.003	.963	1.045
H	.005	.056	.007	.935	1.005	.900	1.121
E	-.011	.032	.112	.738	.990	.930	1.053
L	-.063	.077	.671	.413	.939	.807	1.092
P	-.024	.040	.347	.556	.977	.902	1.057
S	.038	.052	.534	.465	1.038	.939	1.149
Appearance	1.114	.228	23.904	<b>.000</b>	3.048	1.950	4.764
Motivation	-.117	.190	.380	.538	.889	.613	1.291
Soc	-.294	.108	7.361	<b>.007</b>	.745	.602	.922
Parents	.044	.098	.197	.657	1.045	.862	1.266
Age	-.085	.015	30.724	<b>.000</b>	.919	.892	.947
Marital	.300	.133	5.072	<b>.024</b>	1.350	1.040	1.752
Income	-.107	.095	1.274	.259	.898	.745	1.082

Note. B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval for Exp(B); BMI = Body Mass Index; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

It was found that women with higher BMI, who were more concerned with the appearance, in a relationship or married, younger and perceived lower social support, incorrectly perceived their weight (see Table 8.2). They reported incorrectly higher weight.

In the next section the correlates of incorrectly perceived weight situation among overweight women were analysed.

#### 2.2.1.2.2. Correlates for incorrectly perceived weight situation in the group of women with increased BMI

A multinomial regression analysis as was conducted with total women sample and the normal weight women was also conducted with women of increased BMI. The purpose was to identify factors that could be named as significant correlates of incorrectly perceived lower

weight. Although the Adlerian lifestyle of BC was found as significantly related to incorrectly perceived lower weight, the fit of the regression model was not confirmed (see Appendix 5).

An independent sample t-test was employed to compare Adlerian lifestyle personality attributes between those with incorrectly perceived lower weight and those women who correctly perceived weight situation in the group of women with increased BMI.

*Table 9. Comparison of Adlerian personality attributes between women who perceive their weight incorrectly as normal and those who perceive their weight correctly among overweight women (N=182)*

		N	Mean	SD	t	p value
BSI	incorrectly perceived lower weight	7	32.29	4.821	-0.900	0.369
	correctly perceived weight	175	34.21	5.572		
GA	incorrectly perceived lower weight	7	30.29	5.438	0.931	0.171
	correctly perceived weight	175	30.11	5.122		
TC	incorrectly perceived lower weight	7	21.86	4.259	0.009	0.993
	correctly perceived weight	175	21.83	6.904		
WR	incorrectly perceived lower weight	7	38.29	8.321	-1.025	0.305
	correctly perceived weight	175	40.58	5.692		
BC	incorrectly perceived lower weight	7	23.00	3.055	3.459	<b>0.007</b>
	correctly perceived weight	175	18.57	7.313		
H	incorrectly perceived lower weight	7	13.71	2.138	0.760	0.448
	correctly perceived weight	175	12.99	2.489		
E	incorrectly perceived lower weight	7	16.29	3.450	0.121	0.904
	correctly perceived weight	175	16.09	4.183		
L	incorrectly perceived lower weight	7	20.57	4.504	-0.794	0.428
	correctly perceived weight	175	21.65	3.471		
P	incorrectly perceived lower weight	7	20.71	2.928	-1.034	0.302
	correctly perceived weight	175	22.02	3.294		
S	incorrectly perceived lower weight	7	18.57	2.299	-0.586	0.559
	correctly perceived weight	175	19.27	3.136		

*Note.* SD = standard deviation; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness.

An independent sample t-test was conducted with the other biopsychosocial variables with the two groups of overweight women who perceived their weight correctly and the group who perceived themselves incorrectly as being normal weight. Results indicated no significant differences between those groups (see Table 10).

Table 10. Comparison of biopsychosocial variables between women who perceive their weight incorrectly and those who perceive their weight correctly in the group of women with increased BMI (N=182)

		N	Mean	SD	t	p value
Age	incorrectly perceived lower weight	7	45.86	11.408	1.921	.056
	correctly perceived weight	175	37.86	10.783		
Appearance	incorrectly perceived lower weight	7	3.0833	.45644	-1.274	.204
	correctly perceived weight	175	3.3810	.61077		
Motivation	incorrectly perceived lower weight	7	3.2143	.52893	-.174	.862
	correctly perceived weight	175	3.2586	.66558		
Soc	incorrectly perceived lower weight	7	4.8333	1.19799	-1.063	.289
	correctly perceived weight	175	5.3210	1.18991		
Parents	incorrectly perceived lower weight	7	2.4286	1.53917	-1.440	.152
	correctly perceived weight	175	3.0600	1.12091		

Note. SD = standard deviation; Appearance= Importance of appearance; Motivation = Motivational towards appearance; Soc = Perceived social support; Parents = Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

The first research question supported the relationship of the BC lifestyle theme related to incorrectly perceived weight among women with increased BMI. Women who perceived their weight as normal (when having increased BMI) had more expressed personality attribute of BC in compare to those, who perceived their weight correctly as having increased weight. It means that overweight women who are oversensitive and with lack of problem solving skills tend to perceive their weight incorrectly as normal more often than women with less expressed BC. However, in the total women sample or among normal weight women, personality attributes did not play the significant role in correct or incorrect weight perception.

### 2.2.2. Association between perceived weight situation and active intention to manage weight

A second research question addressed the relationship of perceived weight situation and active intention to manage weight and the role of Adlerian lifestyle.

The perceived weight situation was compared to active intention to manage weight. The ANOVA analysis revealed a significant difference of perceived weight situation among groups with various intentions ( $F=66.697, p=0.000$ , see Table 11).

Table 11. Perceived weight situation in the groups of women with various weight management intentions,  $F=66.697, p=0.000 (N=784)$

	N	Mean	SD	SE	95% CI	
gain weight	4	1.75	.500	.250	.95	2.55
nothing	390	3.37	.727	.037	3.30	3.45
keep current	161	3.43	.589	.046	3.34	3.52
lose weight	229	4.06	.563	.037	3.98	4.13
Total	784	3.58	.732	.026	3.53	3.63

Note. SD = Standard deviation; SE = standard error; 95% CI = confidence interval.

There were 4 women who expressed their active intention to gain weight; therefore they were eliminated from the further analysis for the present research question. After excluding these participants the ANOVA showed a positive significance of the difference between the groups ( $F=84.237, p=0.000$ ). Levene's Statistic indicated the difference of the variance among groups ( $33.32, p=0.000$ ). Post-Hoc test with Games-Howell criteria indicated a significant difference of perceived weight situation between women who had an intention to lose weight and other groups having no weight management intention or having an intention to keep current weight (Table 12).

Table 12. Comparison of perceived weight situation in between groups of various intention to manage weight ( $N=780$ )

(I) INTENTION	(J) INTENTION	Mean Difference (I-J)	SE	p value	95% CI	
no intention	keep current	-.054	.059	.631	-.19	.09
	lose weight	-.682*	.052	.000	-.81	-.56
keep current	no intention	.054	.059	.631	-.09	.19
	lose weight	-.628*	.059	.000	-.77	-.49
lose weight	no intention	.682*	.052	.000	.56	.81
	keep current	.628*	.059	.000	.49	.77

Note. SE = standard error; 95% CI = confidence interval.

A multinomial logistic regression analysis was employed to assess perceived weight situation on the intention to manage weight. A significant relationship was identified between the perceived weight situation and the intention to lose weight ( $p=0.008$ , see Table 13).

Table 13. Multinomial logistic regression of perceived weight situation on various intentions to manage weight  $Chi-Square = 154.340, p=0.000, Cox and Snell = 0.180 (N=780)$

INTENTION:		B	SE	Wald	p value	Exp(B)	95% CI	
keep current	Intercept	-1.308	.495	6.996	.008			
	Perceived weight	.124	.142	.765	.382	1.132	.857	1.497
lose weight	Intercept	-6.570	.596	121.583	.000			
	Perceived weight	1.623	.155	109.429	.000	5.070	3.740	6.872

Note. The reference category is: nothing; B = unstandardized regression coefficient; SE = standard error

The findings of the multinomial logistics analysis indicated the most significant relation between perceived weight situation and intentions to keep and lose weight in the group of women with normal BMI (see Appendix 6). In the group of overweight women a significant relationship of perceived weight situation and intention to lose weight was supported. The best predictive value of the perceived weight situation for the intention to lose weight was revealed in the groups of those women who reported weight loss and the improvement of the weight related habits during the last year (see Appendix 6).

#### *2.2.2.1. Correlates and moderators for the intention to manage weight*

ANOVA was used to compare the major lifestyle and supporting themes in the groups related to weight management intention. Results indicated the significant differences for woman who reported the intention to keep current weight and elevated scores on the lifestyle major themes of WR and supporting theme Liked by all when compared to those women who reported no intention to manage weight (see Appendix 7).

Two multinomial logistic regression analyses on the intention to manage weight were conducted. The first regression was conducted to assess the interaction effect of perceived weight situation and lifestyle themes. No significance was identified in relation to lifestyle themes and intention to keep current weight. The BC and Softness supporting lifestyle theme had a negative moderation effect between perceived weight and intention to lose weight (Table 8.1 in Appendix 8).

Another multinomial model including other biopsychosocial variables and their interactions with perceived weight did not indicated perceived weight and lifestyle themes as significant predictors for the intention to keep current weight, however, the Softness supporting theme had a negative moderation effect for the relation between perceived weight and intention to lose weight (see Table 8.2 and Table 8.3 in Appendix 8).

Other biopsychosocial variables were found as significant correlates. Motivation towards appearance was positively related to the intention to keep current weight. Parents' weight had a negative moderation effect for the relation between perceived higher weight and the intention to keep current weight (Table 8.2 in Appendix 8). Motivation towards appearance was positively related to the intention to lose weight while age was negatively related to the intention to lose weight. Parents' weight tended to have a negative moderation effect related to perceived higher weight and the intention to lose weight (Table 8.3 in Appendix 8).

However, it is important to explore the relation between the perceived weight situation and various intentions to manage separately in two groups of women with normal and increased BMI. In the group of women with normal weight no weight-related intention or the intention to keep current would be named as the congruence between the perception and intention, while in the group of overweight women the best congruence would be with the intention to lose weight.

#### 2.2.2.1.1 Correlates and moderators for the intention to manage weight in the group of women with normal BMI

A multinomial logistic regression analysis was used to assess the intention to manage (keep current or lose) weight in the group of women with normal BMI. One part of the regression model related to the intention to keep current weight included all the personality/lifestyle themes and biopsychosocial variables as possible predictors (Table 14). Results indicated that perceived higher weight and motivation towards appearance were significantly related to the intention to keep current weight in the group of women with normal BMI (Table 14).

Perceived higher weight was also positively related to the intention to lose weight. The BC and Softness themes had a negative moderation effect on the relation between perceived weight and intention to lose weight (see Appendix 9). Motivation towards appearance and perceived higher weight were positively related to the intention to lose weight while being concerned with appearance, perceived social support and age were negatively related to the intention to lose weight.

In summary, results of this regression analysis indicated that personality did not play a significant role for the normal weight women in relation to the intention to keep current weight. Perceived higher weight and higher motivation toward appearance were those psychosocial variables that were positively related to the intention to keep current weight. However, Adlerian personality attributes of BC and Softness were supported as having the significant negative effect for the relation between perceived weight and the intention to lose weight among normal weight women. It means that being oversensitive or having better self-view could be named as those personality attributes that help to keep the congruence between the perceived weight and the intention to manage them, in other words, women with the normal BMI do not have an intention to lose weight.

Table 14. Regression analysis for the intention to keep current weight in the group of women with normal BMI, Chi-Square=256.396, p=0.000, Cox and Snell=0.377

INTENTION	B	SE	Wald	p value	Exp(B)	95% CI	
	-8.111	3.340	5.898	.015			
Intercept							
Perceived weight	.506	.253	4.016	<b>.045</b>	1.659	1.011	2.722
BSI <sup>(-)</sup>	.032	.238	.018	.892	1.033	.648	1.647
GA	-.033	.036	.832	.362	.967	.901	1.039
TC	.004	.028	.022	.883	1.004	.950	1.061
WR	.043	.059	.540	.462	1.044	.930	1.172
BC	-.325	.227	2.052	.152	.722	.463	1.127
H	.011	.067	.028	.866	1.011	.888	1.152
E	-.002	.040	.003	.959	.998	.924	1.078
L	.021	.092	.053	.817	1.021	.853	1.223
P	.082	.050	2.693	.101	1.085	.984	1.196
S	-.028	.060	.225	.635	.972	.865	1.093
PerweightxBSI <sup>(-)</sup>	-.342	.265	1.666	.197	.710	.423	1.194
PerweightxGA	.055	.244	.052	.820	1.057	.655	1.704
PerweightxTC	-.160	.229	.490	.484	.852	.544	1.334
PerweightxWR	.244	.450	.293	.588	1.276	.528	3.084
PerweightxBC	-.249	.244	1.048	.306	.779	.483	1.256
PerweightxH	.211	.219	.928	.335	1.235	.804	1.899
PerweightxE	.165	.214	.596	.440	1.180	.776	1.794
PerweightxL	.048	.428	.013	.911	1.049	.453	2.429
PerweightxP	-.092	.213	.186	.666	.912	.601	1.384
PerweightxS	-.269	.267	1.010	.315	.764	.452	1.291
Appearance	-.448	.284	2.495	.114	.639	.366	1.114
Motivation	1.258	.253	24.671	<b>.000</b>	3.519	2.142	5.780
PerweightxAppearance	-.242	.237	1.045	.307	.785	.493	1.249
PerweightxMotivation	.335	.228	2.164	.141	1.398	.895	2.185
SOC <sup>(-)</sup>	.557	.430	1.678	.195	1.745	.752	4.049
PerweightxSOC <sup>(-)</sup>	.072	.204	.124	.725	1.075	.720	1.604
Marital	.122	.167	.529	.467	1.129	.814	1.568
PerweightxMarital	-.085	.198	.182	.670	.919	.623	1.355
Income	-.106	.120	.786	.375	.899	.711	1.137
PerweightxIncome	-.102	.177	.330	.566	.903	.639	1.278
Age	.012	.017	.523	.469	1.012	.980	1.046
PerweightxAge	.382	.210	3.298	.069	1.465	.970	2.211
Parents	.096	.119	.659	.417	1.101	.873	1.389
PerweightxParents	-.253	.176	2.069	.150	.776	.550	1.096

Note. <sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital: 1 = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)).

The biopsychosocial variable, of motivation toward appearance was found as significantly related to both intentions to keep current weight and lose it. However, overestimating the importance of the appearance had an inverse relation with the intention to lose weight. Finally,

perceived social support and increased age were negatively related to the intention to lose weight in the group of women with normal BMI.

#### 2.2.2.1.2. Correlates and moderators for the intention to manage weight in the group of women with increased BMI

In the group of women with increased BMI the main task was to identify those lifestyle themes that are related to the higher intention to lose weight in the context of other variables. A multinomial logistic regression analysis was conducted to find the correlates of the intention to lose or keep current weight. Results revealed significant findings related to Adlerian lifestyle themes and the intention to lose weight (Table 15). Adlerian lifestyle themes were found as significant in relation to the intention to lose weight in the group of overweight women. The GA and TC lifestyle themes were negatively related to the intention to lose weight. The same themes, however, had a positive moderation effect between perceived higher weight and intention to lose weight. Perceived higher weight was the only other variable that was significantly related to the intention to lose weight.

Generalizing the analysis related to the second research question, overweight women with increased need for clear rules in their life and dominating character are less likely to have the intention to lose weight; however, these personality attributes have a positive effect for the relation between perceived weight situation and the intention to lose weight. For example overweight woman who need clear rules and with dominate character attributes will have more intention to lose weight if she perceives herself as being overweight.

Another part of the multinomial regression analysed the correlates of the intention to keep current weight, which seems not the best solution among overweight women. Higher scores on the BC scale were negatively related to the intention to keep current weight among overweight women (Appendix 10). Moreover increased age was positively related to the intention to keep current weight.



Table 15. Regression analysis for the intention to lose weight among overweight women, Chi-Square = 120.733,  $p=0.000$ , Cox and Snell = 0.485 ( $N=182$ )

	B	SE	Wald	Sig.	Exp(B)	95% CI	
Intercept	-5.393	11.819	.208	.648			
Perceived weight	2.882	.986	8.552	<b>.003</b>	17.854	2.587	123.217
BSI <sup>(-)</sup>	-.129	.745	.030	.863	.879	.204	3.786
GA	-.262	.129	4.114	<b>.043</b>	.769	.597	.991
TC	-.193	.098	3.912	<b>.048</b>	.824	.681	.998
WR	-.171	.173	.979	.323	.843	.601	1.182
BC	-1.258	.693	3.293	.070	.284	.073	1.106
H	.227	.221	1.051	.305	1.255	.813	1.936
E	-.002	.117	.000	.985	.998	.794	1.254
L	.259	.289	.802	.371	1.295	.735	2.283
P	-.116	.166	.493	.483	.890	.643	1.232
S	.319	.231	1.904	.168	1.375	.875	2.163
PerceivedxBSI <sup>(-)</sup>	-.058	.724	.006	.936	.944	.228	3.902
PerweightxGA	1.490	.713	4.364	<b>.037</b>	4.438	1.096	17.967
PerweightxTC	1.656	.736	5.068	<b>.024</b>	5.240	1.239	22.162
PerweightxWR	.643	.932	.476	.490	1.903	.306	11.823
PerweightxBC	.613	.557	1.212	.271	1.846	.620	5.495
PerweightxH	-.940	.590	2.532	.112	.391	.123	1.243
PerweightxE	-.453	.546	.689	.407	.635	.218	1.854
PerweightxL	-.816	1.012	.650	.420	.442	.061	3.214
PerweightxP	.996	.644	2.391	.122	2.707	.766	9.567
PerweightxS	-1.669	.974	2.936	.087	.189	.028	1.271
Appearance	.393	.869	.204	.651	1.481	.270	8.128
Motivation	.642	.780	.677	.410	1.900	.412	8.762
PerweightxAppearance	-.537	.547	.965	.326	.584	.200	1.707
PerweightxMotivation	.357	.525	.462	.497	1.429	.510	4.001
SOC <sup>(-)</sup>	1.516	1.320	1.318	.251	4.553	.342	60.563
PerweightXSOC <sup>(-)</sup>	-.721	.482	2.239	.135	.486	.189	1.250
Marital	.006	.429	.000	.989	1.006	.434	2.333
PerweightxMarital	-.071	.378	.035	.852	.932	.444	1.956
Income	-.491	.396	1.540	.215	.612	.282	1.329
PerweightxIncome	.354	.492	.518	.472	1.425	.543	3.736
Age	.012	.043	.078	.780	1.012	.930	1.101
PerweightxAge	-.369	.450	.673	.412	.691	.286	1.669
Parents	.458	.344	1.776	.183	1.581	.806	3.101
PerweightxParents	-.444	.346	1.644	.200	.642	.326	1.264

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; 95% CI = confidence interval; Perweight = perceived weight; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = 1- single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member; Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = intention to lose weight.

### 2.2.3. Association between the intention to manage weight and behaviour variables

The third research question of this thesis addressed the relation between the intention to manage weight and certain type of behaviour, including healthy eating, good eating habits, physical activity, and weight controlling behaviour.

The first ANOVA analysis explored the differences of the scores of each behaviour in various groups of intentions. Before each of the analysis all outliers were excluded following the criteria presented in the appendix 11.

Results of ANOVA analysis revealed the significant differences of the behavioural variables among the various groups of intentions (see Table 16). Post hoc analysis identified that healthy eating, good eating habits and physical activity were less expressed in the group of women who had no active intention to manage weight in compare to those who had an intention to keep or lose weight, however weight controlling behaviour used were different in all three groups (Appendix 12, Table 12.1). Homogeneous subsets of healthy eating, good eating habits and physical activity among those who had an intention to keep current weight and those who had an intention to lose weight were found (see Appendix 12, Table 12.2). Therefore in the further analysis related to the intention to manage weight and these behaviours in total female sample, these groups of intentions were integrated together as one group named "having an active intention to manage weight".

Table 16. Weight-related behaviour in various groups of intention to manage weight

	N	Mean	SD	SE	95% CI for Mean	
HEALTHY EATING (F=32.296, p=0.000)						
nothing	379	3.1114	.59460	.03054	3.0513	3.1715
keep current	159	3.4605	.59176	.04693	3.3678	3.5532
lose weight	229	3.4294	.51377	.03395	3.3625	3.4963
Total	767	3.2787	.59394	.02145	3.2366	3.3208
GOOD EATING HABITS (F=14.383, P=0.000)						
nothing	387	5.1266	1.24642	.06336	5.0020	5.2512
keep current	161	5.6863	1.15288	.09086	5.5069	5.8658
lose weight	227	5.5077	1.23697	.08210	5.3459	5.6695
Total	775	5.3545	1.24581	.04475	5.2667	5.4424
PHYSICAL ACTIVITY (F=27.832, p=0.000)						
nothing	385	24.9611	20.49447	1.04449	22.9075	27.0148
keep current	152	34.9408	22.30530	1.80920	31.3662	38.5154
lose weight	220	37.6182	22.91237	1.54475	34.5737	40.6627
Total	757	30.6434	22.34073	.81199	29.0493	32.2374
WEIGHT CONTROLLING BEHAVIOUR (F=202.026, p=0.000)						
nothing	390	1.4061	.29948	.01516	1.3763	1.4359
keep current	161	1.8075	.44128	.03478	1.7388	1.8761
lose weight	226	2.0205	.44713	.02974	1.9619	2.0791
Total	777	1.6680	.46666	.01674	1.6351	1.7008

Note. SD = standard deviation; SE = standard error associated with B; 95% CI = confidence interval.

### 2.2.3.1. Association between the intention to manage weight and healthy eating

Linear regression analysis revealed the significant relation between the active intention to manage weight and healthy eating, however the regression model accounted only for 7.8 percent of the variance of healthy eating (see Table 17).

The predictive value of the intention on healthy eating was also weak in separate groups of women with various BMI, weight change and weight-related habits' change during the last year. However the best fit of the model was the group of women with (1) normal BMI (2) who reported no weight change during the last year and those (3) who improved their weight-related habits during the last year in compare to other groups (see Appendix 13).

Table 17. Linear regression analysis of intention to manage weight on healthy eating,  $F=64.374$ ,  $p=0.000$ ,  $R\text{ Square} = 0.078$  ( $N=767$ )

	B	SE	t	p value
(Constant)	2.781	.065	42.512	.000
Intention to manage weight	.331	.041	8.023	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Intention to manage weight = 1 - no active intention to manage weight, 2 - active intention to keep or lose weight; dependent variable = healthy eating.

Additional independent variables including personality attributes and other biopsychosocial factors were analysed in the next chapter.

#### 2.2.3.1.1 Correlates and moderators for healthy eating

Regression analysis was conducted to evaluate the Adlerian lifestyle themes as possible correlates and moderators together with the intention to manage weight and other biopsychosocial variables for the healthy eating in the total female sample. The model accounted for 20.2 percent of the variance of healthy eating (Appendix 14).

The significance of some of Adlerian personality attributes was supported. Higher scores on supporting lifestyle themes of Striving for Perfection scale and lower scores on the scale of Harshness were related to healthy eating in total female sample group.

Some other biopsychosocial factors were also revealed as significant correlates in the model. Concern with the appearance was negatively related to healthy eating, while motivation towards appearance was related to healthy eating in a positive direction. Furthermore marital status of being single, higher income and increase in age was positively related to the more of healthy eating (Appendix 14). Further the relation between the intention to manage weight and healthy eating was analysed in two groups of women with normal and increased BMI.

2.2.3.1.1.1. *Correlates and moderators for healthy eating in the group of women with normal BMI*

A hierarchical regression analysis related to healthy eating was conducted in the group of women with normal BMI. Although the similarity of two intentions to keep current weight and lose weight was supported in relation to behavioural variables, when conducting analysis separately in two groups of women with normal and increased weight, intention to lose weight and intentions to keep current weight were included as separate independent variables in the regression model.

The first step of the regression included only two types of intentions to manage weight (lose or keep), lifestyle themes were included in the next step, and then interactions of each of the personality attributes and intention to keep current weight were included. In the fourth step interactions between the intention to lose weight and all lifestyle themes were included and in the final step, the other biopsychosocial variables were added into the model. The summary of each step of the regression supported the importance of intentions to manage weight, Adlerian personality attributes and other biopsychosocial variables for the healthy eating (Table 18). However, lifestyle themes had no effect between the intention to keep or lose weight and healthy eating.

*Table 18. The summary of the hierarchical regression model on healthy eating in the group of women with normal BMI: coefficients of each step*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.269	.072	.069	.57590	.072	20.545	.000
2	.360	.130	.110	.56314	.057	3.415	.000
3	.381	.145	.108	.56366	.015	.905	.529
4	.392	.153	.099	.56650	.008	.493	.895
5	.443	.196	.132	.55588	.043	3.739	.001

*Note.* R Square = coefficient of determination; SE = Standard error.

The final regression model was included with all the correlates and interaction variables to measure the moderation effect of various personality attributes for the intention to keep current or lose weight and healthy eating (Table 19). Both intention to keep current weight and intention to lose weight were positively related to healthy eating. Harshness was the only significant personality attribute negatively related to healthy eating. No moderation effect of personality was supported in the relation between the weight management intentions and healthy eating (Table 19).

Table 19. The coefficients of the final step of the regression analysis for the healthy eating among women with normal BMI (N=530)

	B	SE	Beta	t	Sig.
(Constant)	2.552	.852		2.996	<b>.003</b>
keep current weight	.304	.066	.219	4.615	<b>.000</b>
lose weight	.304	.065	.225	4.649	<b>.000</b>
BSI <sup>(-)</sup>	.098	.068	.136	1.440	.151
GA	8.540E-005	.010	.001	.009	.993
TC	.001	.008	.016	.177	.860
WR	.000	.016	.001	.009	.993
BC	.068	.057	.094	1.191	.234
H	-.041	.019	-.177	-2.217	<b>.027</b>
E	-.009	.010	-.065	-.928	.354
L	-.012	.027	-.067	-.441	.659
P	.017	.013	.094	1.243	.215
S	.021	.016	.120	1.298	.195
KeepxBSI	.094	.094	.078	1.003	.317
KeepxGA	-.083	.090	-.072	-.929	.354
KeepxTC	.132	.094	.116	1.405	.161
KeepxWR	-.021	.165	-.017	-.127	.899
KeepxBC	-.047	.082	-.038	-.571	.569
KeepxH	.042	.082	.036	.519	.604
KeepxE	-.105	.078	-.078	-1.335	.182
KeepxL	-.075	.152	-.064	-.494	.621
KeepxP	.064	.078	.052	.825	.410
KeepxS	-.024	.098	-.019	-.248	.805
LosexBSI	-.065	.086	-.058	-.749	.454
LosexGA	.053	.086	.050	.612	.541
LosexTC	.013	.081	.012	.161	.872
LosexWR	.028	.159	.023	.177	.859
LosexBC	.018	.080	.016	.229	.819
LosexH	.007	.080	.006	.088	.930
LosexE	.071	.067	.066	1.053	.293
LosexL	-.080	.152	-.068	-.527	.599
LosexP	-.060	.074	-.054	-.810	.419
LosexS	-.083	.086	-.079	-.967	.334
Appearance	-.110	.050	-.117	-2.211	<b>.027</b>
Motivation	.138	.046	.160	3.036	<b>.003</b>
Soc <sup>(-)</sup>	-.162	.080	-.097	-2.008	<b>.045</b>
Marital	-.066	.030	-.099	-2.192	<b>.029</b>
Income	.032	.022	.064	1.474	.141
Age	.007	.003	.105	2.276	<b>.023</b>
Parents	.026	.023	.048	1.124	.262

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = 1- single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member; Parents= Parents' weight situation; dependent variable = healthy eating.

Other biopsychosocial variables were also found as significant correlates of healthy eating among normal weight women. Women who were more concerned with their appearance used to eat less healthy, while motivation towards appearance was positively related to healthy eating.

Moreover, women who were single, perceived more social support, and had increased age were more likely to eat healthy (Table 19).

*2.2.3.1.1.2. Correlates and moderators for healthy eating  
in the group of women with increased BMI*

In the group of women with increased BMI a hierarchic regression analysis with the same independent variables in various steps was used and included Adlerian lifestyle themes, interaction with the two types of intention, and other biopsychosocial variables. The final model explained 37.8 percent of the variance of healthy eating (see Table 20).

*Table 20. The summary of the hierarchical regression model on healthy eating in the group of women with increased BMI: coefficients of each step*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.270	.073	.063	.54048	.073	7.004	.001
2	.485	.235	.181	.50532	.162	3.564	.000
3	.515	.265	.163	.51075	.030	.645	.774
4	.566	.320	.173	.50757	.055	1.199	.296
5	.618	.382	.211	.49581	.062	2.015	.057

*Note.* R Square = coefficient of determination; SE = Standard error.

In the group of women with increased BMI, the final step of regression analysis revealed several significant correlates (Table 21). First, the intention to lose weight (but not the intention to keep current) was positively related to healthy eating. Personality attribute of GA was supported as negative correlate for healthy eating, however, it has a positive effect on the relation between the intention to keep current weight and healthy eating.

From the other variables, only marital status of being single was related to healthy eating (Table 21).

Table 21. The coefficients of the final step of the regression analysis for the healthy eating among women with increased BMI (N=181)

	B	SE	Beta	t	Sig.
(Constant)	6.828	1.474		4.631	<b>.000</b>
keep current weight	.040	.186	.023	.216	.829
lose weight	.216	.091	.194	2.385	<b>.018</b>
BSI <sup>(c)</sup>	-.135	.110	-.200	-1.224	.223
GA	-.033	.017	-.299	-1.952	<b>.050</b>
TC	-.007	.013	-.089	-.576	.565
WR	-.033	.029	-.340	-1.128	.261
BC	-.192	.109	-.291	-1.769	.079
H	-.050	.035	-.223	-1.422	.157
E	.015	.016	.110	.911	.364
L	.029	.046	.182	.632	.528
P	.032	.021	.188	1.542	.125
S	-.048	.031	-.268	-1.568	.119
KeepxBSI	.207	.199	.152	1.040	.300
KeepxGA	.475	.230	.223	2.069	<b>.040</b>
KeepxTC	.138	.197	.085	.699	.486
KeepxWR	.215	.476	.132	.452	.652
KeepxBC	.078	.244	.053	.321	.748
KeepxH	.162	.261	.100	.619	.537
Keepx_E	-.202	.181	-.135	-1.117	.266
KeepxL	-.151	.509	-.090	-.297	.767
KeepxP	-.009	.218	-.006	-.043	.966
KeepxS	.354	.201	.226	1.763	<b>.080</b>
LosexBSI	.038	.129	.043	.291	.772
LosexGA	.235	.122	.291	1.934	<b>.055</b>
LosexTC	.191	.127	.240	1.509	.133
LosexWR	.019	.219	.024	.086	.931
LosexBC	.147	.129	.181	1.137	.257
LosexH	.175	.119	.210	1.477	.142
LosexE	-.015	.098	-.018	-.156	.876
LosexL	-.033	.211	-.041	-.157	.875
LosexP	-.035	.108	-.034	-.322	.748
LosexS	.232	.138	.256	1.681	.095
Appearance	-.175	.091	-.189	-1.912	.058
Motivation	.104	.078	.123	1.343	.181
Soc <sup>(c)</sup>	.031	.138	.020	.224	.823
Marital	-.089	.045	-.148	-1.987	<b>.049</b>
Income	.046	.040	.091	1.154	.250
Age	.004	.005	.088	.997	.321
Parents	.047	.038	.096	1.236	.218

Note.<sup>(c)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = healthy eating.

### 2.2.3.2. Association between intention to manage weight and good eating habits

The linear regression analysis which was conducted in the total female sample with the intention to manage weight as an independent variable, only accounted for 3.3 percent of the variance of good eating habits (see Table 22).

Table 22. Linear regression analysis of the intention to manage weight on good eating habits,  $F=26.728$ ,  $p=0.000$ ,  $R\text{ Square} = 0.033$  ( $N=775$ )

	B	SE	t	p value
(Constant)	4.671	.139	33.541	.000
intention to manage weight	.455	.088	5.170	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Intention to manage weight = 1 - no active intention to manage weight, 2 - active intention to keep or lose weight; dependent variable = good eating habits.

The predictive value of the intention to manage weight on good eating habits was explored in the separate groups of women in relation to their BMI, weight and weight-related habits change during the last year (Appendix 15). The model did not fit the data in the group of underweight women, related behaviour changes during the past year or those women whose eating behaviour got worse during the past year. The best fit of the model and data was found in the groups of women with normal BMI, who reported weight gain or improvement of the habits during the last year. However, the explained variance was quite small (Appendix 15).

#### 2.2.3.2.1 Correlates and moderators for good eating habits

A linear regression analysis on good eating habits was conducted with the independent variables of the intention to manage weight, personality and other biopsychosocial factors as well as their interaction with the intention to manage weight. The model accounted for 16.9 percent of the variance (see Appendix 16).

Intention to manage weight was related to better eating habits. Striving for perfection supporting lifestyle theme that was positively related to better eating habits. Other situational variables were found as significant correlates. Motivation towards appearance and increased age was related to better eating habits, while being concerned with the appearance was inversely related to good eating habits (Appendix 16).



2.2.3.2.1.1. *Correlates and moderators for good eating habits  
in the group of women with normal BMI*

In the group of women with normal BMI, the hierarchical regression analysis was conducted. The first step included the intention to keep and lose weight as two independent variables, lifestyle themes were added in the second step and third and fourth step included interactions of lifestyle themes and two types of intentions and the final fifth step included other biopsychosocial variables. The summary of each step of the analysis and the improvement of the model in each step is presented in Table 23. The same as with the healthy eating, lifestyle themes and other biopsychosocial variables were supported as those who added a significant value for the model, while significant moderating role of the lifestyle themes were not supported (according to the F change, see Table 24).

*Table 24. The summary of the hierarchical regression model on good eating habits in the group of women with normal BMI: coefficients of each step (N=538)*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.203	.041	.037	1.21512	.041	11.460	.000
2	.342	.117	.097	1.17722	.076	4.501	.000
3	.369	.136	.099	1.17559	.019	1.145	.326
4	.399	.159	.106	1.17119	.023	1.387	.183
5	.440	.193	.130	1.15524	.034	3.006	.004

*Note.* R Square = coefficient of determination; SE = standard error.

The coefficients of the final step of the hierarchical analysis are presented in the table 25. Both the intention to keep current and the intention to lose weight were positively related to better eating habits. This result might indicate that the intention to lose weight (even when being of normal BMI leads to welcomed outcome behaviour (good eating). Striving for perfection was supported as a significant supporting theme related to good eating habits. The BSI lifestyle theme was found to have a positive effect on the relation between the intention to lose weight and good eating habits.

Talking about the other biopsychosocial variables, motivation towards appearance and increased age were those positively related to better eating habits (Table 25).

Table 25. The coefficients of the final step of the regression analysis for good eating habits among women with normal BMI (N=538)

	B	SE	Beta	t	Sig.
(Constant)	2.154	1.739		1.239	.216
keep current weight	.575	.136	.199	4.234	<b>.000</b>
lose weight	.389	.136	.138	2.871	<b>.004</b>
BSI <sup>(-)</sup>	.172	.138	.115	1.242	.215
GA	.024	.020	.104	1.195	.233
TC	.030	.016	.164	1.898	.058
WR	-.032	.033	-.148	-.987	.324
BC	-.029	.117	-.019	-.251	.802
H	-.037	.037	-.078	-.988	.324
E	.005	.020	.016	.231	.817
L	-.004	.054	-.012	-.082	.935
P	.071	.027	.195	2.610	<b>.009</b>
S	.027	.034	.074	.808	.420
KeepxBSI <sup>(-)</sup>	-.076	.192	-.031	-.397	.692
KeepxGA	.090	.185	.037	.489	.625
KeepxTC	-.047	.192	-.020	-.245	.807
KeepxWR	-.119	.329	-.047	-.360	.719
KeepxBC	-.026	.170	-.010	-.155	.877
KeepxH	.188	.166	.078	1.132	.258
Keepx_E	-.074	.159	-.027	-.466	.642
KeepxL	.186	.305	.076	.611	.541
KeepxP	-.216	.161	-.083	-1.342	.180
KeepxS	-.129	.201	-.050	-.640	.523
LosexBSI <sup>(-)</sup>	-.485	.181	-.205	-2.676	<b>.008</b>
LosexGA	-.193	.179	-.087	-1.082	.280
LosexTC	-.247	.168	-.112	-1.472	.142
LosexWR	-.036	.330	-.014	-.109	.913
LosexBC	-.075	.166	-.030	-.455	.649
LosexH	.187	.166	.079	1.125	.261
LosexE	-.122	.139	-.054	-.871	.384
LosexL	-.030	.315	-.012	-.094	.925
LosexP	-.202	.155	-.087	-1.304	.193
LosexS	.062	.179	.028	.347	.729
Appearance	-.105	.103	-.054	-1.026	.306
Motivation	.196	.093	.111	2.112	<b>.035</b>
Soc <sup>(-)</sup>	-.165	.166	-.048	-.991	.322
Marital	.032	.062	.023	.509	.611
Income	.033	.045	.031	.727	.468
Age	.022	.006	.157	3.398	<b>.001</b>
Parents	.008	.047	.007	.171	.864

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); dependent variable = good eating habits.

2.2.3.2.1.2. *Correlates and moderators for good eating habits*

*in the group of women with increased BMI*

A hierarchical regression analysis for good eating habits in the group of overweight women was conducted and resulted in the final model accounting for 35.7 percent of the variance of the good eating habits (see Table 26). Statistical information on each of the steps of the regression analysis supported the significance of lifestyle themes (2nd step) and other biopsychosocial variables (5th step) for good eating habits. However an explained variance of the good eating habits was not increased significantly by the interactions of lifestyle themes and the intention to lose (3rd step) or keep current (4th step) weight.

*Table 26. The summary of the hierarchical regression model on good eating habits in the group of women with increased BMI: coefficients of each step (N=181)*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.192	.037	.026	1.27642	.037	3.404	.035
2	.422	.178	.120	1.21351	.142	2.893	.002
3	.448	.201	.089	1.23416	.022	.443	.923
4	.515	.265	.106	1.22300	.064	1.290	.241
5	.597	.357	.179	1.17209	.092	2.876	.008

*Note.* R Square = coefficient of determination; SE = Standard error.

Regression coefficients of the 5th model were presented in the table 27. Intention to lose weight, but not the intention to keep current weight was found as significant correlate for good eating habits among overweight women. The TC lifestyle theme was negatively related to good eating habits. The supporting theme of Striving for Perfection was positively related to good eating habits. It was also found that the TC theme had a positive effect on the relation between the intention to keep current weight and good eating habits, while Entitlement and Striving for Perfection used to decrease the relation between the intention to lose weight and good eating habits (see Table 27).

Women concerned with their appearance was inversely related to good eating habits while motivation toward appearance was positively related to good eating habits (Table 27).

Table 27. The coefficients of the final step of the regression analysis for good eating habits among women with increased BMI (N=181)

	B	SE	Beta	t	Sig.
(Constant)	4.976	3.494		1.424	.157
keep current weight	-.037	.440	-.009	-.083	.934
lose weight	.589	.214	.228	2.752	<b>.007</b>
BSI <sup>(-)</sup>	-.357	.256	-.229	-1.396	.165
GA	-.003	.040	-.013	-.080	.936
TC	-.061	.030	-.323	-2.050	<b>.042</b>
WR	-.032	.067	-.146	-.481	.631
BC	.207	.257	.136	.807	.421
H	.056	.082	.107	.677	.500
E	.034	.039	.109	.881	.380
L	-.005	.106	-.015	-.052	.959
P	.126	.049	.319	2.567	<b>.011</b>
S	-.007	.073	-.017	-.094	.925
KeepxBSI <sup>(-)</sup>	-.114	.468	-.036	-.244	.808
KeepxGA	.281	.542	.057	.518	.605
KeepxTC	1.031	.466	.276	2.214	<b>.028</b>
KeepxWR	-.018	1.122	-.005	-.016	.987
KeepxBC	-.178	.576	-.052	-.309	.758
KeepxH	-.481	.616	-.129	-.780	.437
Keepx_E	-.733	.429	-.212	-1.708	.090
KeepxL	.041	1.201	.011	.034	.973
KeepxP	-.271	.516	-.077	-.525	.601
KeepxS	-.752	.476	-.207	-1.579	.117
LosexBSI <sup>(-)</sup>	-.293	.303	-.143	-.968	.335
LosexGA	-.015	.288	-.008	-.052	.959
LosexTC	.318	.299	.173	1.063	.290
LosexWR	.562	.512	.314	1.098	.274
LosexBC	-.391	.306	-.207	-1.280	.203
LosexH	-.003	.278	-.001	-.010	.992
LosexE	-.511	.234	-.255	-2.181	<b>.031</b>
LosexL	-.261	.493	-.139	-.529	.598
LosexP	-.630	.256	-.268	-2.462	<b>.015</b>
LosexS	-.261	.329	-.124	-.792	.430
Appearance	-.664	.216	-.313	-3.082	<b>.002</b>
Motivation	.395	.184	.202	2.151	<b>.033</b>
Soc <sup>(-)</sup>	-.267	.327	-.074	-.815	.416
Marital	-.160	.107	-.115	-1.496	.137
Income	.059	.094	.051	.630	.530
Age	.016	.011	.137	1.531	.128
Parents	.099	.089	.087	1.107	.270

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivational towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); dependent variable = good eating habits.

### 2.2.3.3. Association between intention to manage weight and physical activity

The linear regression analysis revealed a significant relationship between active intention to manage weight and physical activity, however the regression model accounted only for 6.7 percent of the variance of physical activity (Table 28).

Table 28. Linear regression analysis of intention to manage weight on physical activity,  $F=54.253$ ,  $p=0.000$ ,  $R\text{ Square} = 0.067$  ( $N=757$ )

	B	SE	t	p value
(Constant)	13.398	2.469	5.426	.000
ntention to manage weight	11.563	1.570	7.366	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Intention to manage weight = 1 - no active intention to manage weight, 2 - active intention to keep or lose weight; dependent variable = physical activity.

Intention used to account for less of the variance of physical activity in separate groups of women in relation to their BMI, weight and habits' change during the last year (Appendix 17).

#### 2.2.3.3.1 Correlates and moderators for physical activity

The hierarchical regression analysis with the intention to manage weight, lifestyle themes, and interaction with the intention to manage weight, as well as other biopsychosocial variables was calculated to predict physical activity. The model accounted for 15.2 percent of the variance of physical activity (see Appendix 18).

Additional regression analysis including the intention to manage weight as independent variable and physical activity as dependent variable in three groups yielded a positive moderation effect of BC lifestyle theme on the relation between the intention to manage weight and physical activity.

Motivation towards appearance was positively related to higher physical activity while marital status of being married and increased age were related to lower physical activity (see Appendix 18).

2.2.3.3.1.1. *Correlates and moderators for physical activity*

*in the group of women with normal BMI*

The hierarchical regression analysis with the same variables was conducted in the group of women with normal BMI. The coefficients of the each step of the regression analysis indicated that the intentions to manage weight and other than personality biopsychosocial variables were those that significantly increased the explained variance of physical activity in the group of women with normal BMI.

*Table 29. The summary of the hierarchical regression model on physical activity in the group of women with increased BMI: coefficients of each step (N=181)*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.268	.072	.068	21.36851	.072	20.148	.000
2	.308	.095	.073	21.30750	.023	1.299	.228
3	.328	.107	.068	21.36683	.013	.716	.710
4	.350	.122	.065	21.39992	.015	.845	.585
5	.438	.192	.127	20.68233	.070	5.962	.000

*Note.* R Square = coefficient of determination; SE = Standard error.

However, significance of several included variables for physical activity was revealed (Table 30). First, both intentions to keep current and lose weight were positively related to physical activity.

BC has a positive moderation effect on the relation between the intention to keep current weight and physical activity, which means that oversensitive women (high scores of BC) used to choose physical activity if they wanted to keep their current weight more often in compare to those with lower BC scores.

Analysis of the other biopsychosocial variables revealed significant positive relationships between the motivation towards appearance and physical activity while concern with the appearance was negatively related to physical activity. Finally those women who were married and older reported less physical activity (Table 30).

Table 30. The coefficients of the final step of the regression analysis for physical activity among women with normal BMI (N=525)

	B	SE	Beta	t	Sig.
(Constant)	55.325	31.127		1.777	.076
keep current weight	10.178	2.486	.195	4.094	<b>.000</b>
lose weight	9.180	2.458	.181	3.735	<b>.000</b>
BSI <sup>(-)</sup>	1.570	2.482	.059	.633	.527
GA	-.673	.362	-.163	-1.858	.064
TC	-.169	.288	-.051	-.589	.556
WR	.003	.599	.001	.006	.995
BC	-.730	2.096	-.027	-.348	.728
H	-.280	.662	-.033	-.423	.673
E	-.052	.367	-.010	-.141	.888
L	-.163	.982	-.025	-.166	.868
P	-.247	.491	-.038	-.503	.615
S	1.042	.601	.161	1.734	.084
KeepxBSI <sup>(-)</sup>	-4.058	3.466	-.091	-1.171	.242
KeepxGA	.479	3.332	.011	.144	.886
KeepxTC	2.320	3.577	.054	.649	.517
KeepxWR	-3.815	6.101	-.084	-.625	.532
KeepxBC	6.115	3.093	.129	1.977	<b>.049</b>
KeepxH	.454	3.033	.010	.150	.881
Keepx_E	-2.685	2.939	-.054	-.914	.361
KeepxL	-.159	5.603	-.004	-.028	.977
KeepxP	1.403	2.915	.030	.481	.631
KeepxS	-2.247	3.618	-.049	-.621	.535
LosexBSI <sup>(-)</sup>	-.282	3.215	-.007	-.088	.930
LosexGA	4.969	3.235	.126	1.536	.125
LosexTC	2.324	3.057	.059	.760	.448
LosexWR	-5.027	5.982	-.111	-.840	.401
LosexBC	5.308	2.987	.121	1.777	.076
LosexH	-.332	2.988	-.008	-.111	.912
LosexE	.538	2.534	.013	.212	.832
LosexL	1.667	5.717	.038	.292	.771
LosexP	-.333	2.782	-.008	-.120	.905
LosexS	-2.302	3.204	-.058	-.718	.473
Appearance	-5.475	1.887	-.157	-2.902	<b>.004</b>
Motivation	7.463	1.718	.235	4.345	<b>.000</b>
Soc <sup>(-)</sup>	-2.157	2.996	-.035	-.720	.472
Marital	-3.511	1.122	-.142	-3.130	<b>.002</b>
Income	-.609	.834	-.032	-.731	.465
Age	-.259	.117	-.103	-2.204	<b>.028</b>
Parents	-.295	.848	-.015	-.349	.727

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = physical activity.

2.2.3.3.1.2. *Correlates and moderators for physical activity  
in the group of women with increased BMI*

After conducting hierarchical regression with the same variables in the group of women with increased weight, the significant R Square change was found only when the intention to keep and the intention to lose weight were included (1st step, Table 31). Variables included in the next steps (2nd – lifestyle themes, 3rd - interaction of themes and an intention to keep current weight, 4th - interaction of themes and an intention to lose weight, and 5th - other biopsychosocial variables) did not increased the explained variance of physical activity significantly ( $p(F\ Change) > 0.05$ ). However, the independent variables of the final model explained 31.4 percent of the variance of physical activity.

*Table 31. The summary of the hierarchical regression model on physical activity in the group of women with increased BMI: coefficients of each step (N=177)*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.292	.085	.075	21.52	.085	8.129	.000
2	.409	.167	.106	21.16	.082	1.606	.109
3	.482	.232	.123	20.96	.065	1.310	.230
4	.541	.293	.136	20.80	.061	1.238	.272
5	.561	.314	.119	21.00	.021	.607	.749

*Note.* R Square = coefficient of determination; SE = Standard error.

In the final regression model intention to lose weight was significantly related to higher physical activity (Table 32).

The TC theme was the only other significant correlate for physical activity. Women who had the elevated scores on the TC theme were less physical active. However at the same time the tendency ( $p < 0.1$ ) of the positive moderation effect of TC on the relation between intention to lose weight and physical activity was noticed (see Table 32). Additional regression analysis revealed that in the group of overweight women who reported elevated scores on the TC theme, there was the strongest association between the intention to lose weight and physical activity.

There were no other biopsychosocial variables related to physical activity (Table 32).



Table 32. The coefficients of the final step of the regression analysis for physical activity among women with increased BMI (N=177)

	B	SE	Beta	t	Sig.
(Constant)	171.960	62.779		2.739	<b>.007</b>
keep current weight	7.846	8.354	.109	.939	.349
lose weight	9.723	3.882	.217	2.504	<b>.013</b>
BSI <sup>(-)</sup>	-3.530	4.598	-.130	-.768	.444
GA	-1.097	.735	-.249	-1.493	.138
TC	-1.124	.543	-.340	-2.068	<b>.041</b>
WR	-.091	1.213	-.023	-.075	.940
BC	-8.883	4.613	-.340	-1.925	.056
H	.136	1.491	.015	.091	.927
E	-.549	.693	-.102	-.792	.430
L	-.571	1.902	-.088	-.300	.764
P	1.218	.874	.180	1.394	.166
S	-1.794	1.294	-.252	-1.386	.168
KeepxBSI <sup>(-)</sup>	2.913	8.493	.054	.343	.732
KeepxGA	-4.918	9.915	-.057	-.496	.621
KeepxTC	5.235	8.403	.082	.623	.534
KeepxWR	19.786	20.484	.265	.966	.336
KeepxBC	4.147	10.419	.071	.398	.691
KeepxH	12.793	11.061	.189	1.157	.249
Keepx_E	3.667	7.715	.062	.475	.635
KeepxL	-25.040	23.054	-.311	-1.086	.279
KeepxP	11.094	9.714	.185	1.142	.255
KeepxS	7.172	8.517	.115	.842	.401
LosexBSI <sup>(-)</sup>	-3.811	5.628	-.108	-.677	.499
LosexGA	7.782	5.279	.240	1.474	.143
LosexTC	10.156	5.499	.313	1.847	<b>.067</b>
LosexWR	-12.438	9.209	-.405	-1.351	.179
LosexBC	6.644	5.494	.206	1.209	.229
LosexH	.203	5.074	.006	.040	.968
LosexE	-.940	4.234	-.027	-.222	.825
LosexL	15.674	8.852	.489	1.771	.079
LosexP	-1.769	4.586	-.044	-.386	.700
LosexS	-3.714	5.906	-.102	-.629	.531
Appearance	4.209	3.875	.115	1.086	.279
Motivation	-1.609	3.316	-.048	-.485	.628
Soc <sup>(-)</sup>	-5.380	5.941	-.087	-.906	.367
Marital	-.086	1.956	-.004	-.044	.965
Income	-1.498	1.692	-.074	-.886	.377
Age	-.092	.195	-.044	-.473	.637
Parents	-.435	1.614	-.022	-.269	.788

Note. <sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = physical activity.

**2.2.3.4. Association between intention to manage weight  
and weight controlling behaviour**

A linear regression analysis was used in total women sample to explore the relation between the intention to manage weight and weight controlling behaviour in the total female sample. Women with the intention to keep current weight and the intention to lose weight were not found as homogeneous sample in relation to weight controlling behaviour (see Appendix 12, table 12.2). Therefore, the two independent variables for the intention to keep current weight and having an intention to lose weight were included in the regression analysis. The model accounted for 34.3 percent of the variance of weight controlling behaviour (see Table 33).

*Table 33. Linear regression model of intention to manage weight on the weight controlling behaviour,  $F=202.026$ ,  $p=0.000$ ,  $R\text{ Square} = 0.343$  ( $N=777$ )*

	B	SE	t	p value
(Constant)	1.406	.019	73.316	.000
Intention to lose weight	.614	.032	19.404	.000
Intention to keep weight	.401	.035	11.313	.000

*Note.* B = unstandardized regression coefficient; SE = standard error associated with B; dependent variable = weight controlling behaviour.

An additional regression analysis was run to assess the relation between the two types of intention to manage weight (to keep current or to lose) and weight controlling behaviour in the separate groups of women with various BMI, weight change and weight-related habits' change during the past year (see appendix 20). The intention to keep current and lose weight explained the largest variance of weight controlling behaviour in the group of women with decreased BMI or normal BMI, among those women whose weight stayed the same or who lost some weight during the last year. However explained variance of weight controlling behaviour did not differ among various groups of habits' change during the past year (Appendix 19).

**2.2.3.4.1 Correlates and moderators for weight controlling behaviour**

A hierarchical regression analysis was conducted to explore the possible correlates and moderators for weight controlling behaviour. Intention to keep current weight and to lose weight, lifestyle themes, and their interactions with the two types of intentions to manage weight and biopsychosocial variables and were stepwise included in the model. The model accounted for 40.9 percent of the variance of weight controlling behaviour (see Table 34).

Table 34. The summary of the hierarchical regression model on weight controlling behaviour in the total female sample (N=777)

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.586	.343	.341	.37874	.343	202.026	.000
2	.600	.359	.349	.37640	.017	1.969	.034
3	.606	.367	.349	.37659	.008	.920	.514
4	.616	.379	.352	.37561	.012	1.398	.177
5	.639	.409	.377	.36819	.030	5.324	.000

Note. R Square = coefficient of determination; SE = Standard error.

The final regression model for weight controlling behaviour in the total women sample indicated that both intentions to keep current and to lose weight were related to more of weight controlling behaviour. However, there were no lifestyle themes related to weight controlling behaviour or intention to lose or keep current weight and weight controlling behaviour (see Appendix 20). The biopsychosocial variables positively related to weight controlling behaviours included concern with the appearance, increased age and higher parents' weight (Appendix 20).

2.2.3.4.1.1. Correlates and moderators for weight controlling behaviour  
in the group of women with normal BMI

The same hierarchical regression analysis was conducted in the group of women with normal BMI. Including lifestyle themes and biopsychosocial variables added a significant part of the explained variance of weight controlling behaviour in the model (Table 35). The final model accounted for 43.4 percent of the variance of weight controlling behaviour.

Table 35. The summary of the hierarchical regression model on weight controlling behaviour in the group of women with normal BMI (N=541).

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.588	.346	.343	.36222	.346	142.268	.000
2	.616	.380	.366	.35601	.034	2.893	.002
3	.622	.387	.361	.35747	.007	.570	.838
4	.629	.396	.358	.35817	.009	.797	.631
5	.659	.434	.390	.34913	.038	4.806	.000

Note. R Square = coefficient of determination; SE = Standard error.

Both intention to keep current and lose weight were related to the weight controlling behaviour in the group of women with normal BMI.

Table 36. The coefficients of the final step of the regression analysis for weight controlling behaviour in the group of women with normal BMI (N=541)

	B	SE	Beta	t	Sig.
(Constant)	1.080	.522		2.070	<b>.039</b>
keep current weight	.384	.041	.368	9.372	<b>.000</b>
lose weight	.542	.041	.531	13.281	<b>.000</b>
BSI <sup>(-)</sup>	.053	.042	.099	1.266	.206
GA	-.008	.006	-.100	-1.372	.171
TC	.002	.005	.036	.501	.616
WR	-.008	.010	-.101	-.806	.421
BC	.013	.035	.023	.360	.719
H	-.012	.011	-.073	-1.113	.266
E	.000	.006	-.002	-.043	.965
L	-.002	.016	-.012	-.096	.924
P	.009	.008	.066	1.066	.287
S	.004	.010	.033	.434	.665
KeepxBSI <sup>(-)</sup>	-.055	.058	-.062	-.954	.340
KeepxGA	-.008	.056	-.009	-.146	.884
KeepxTC	-.008	.058	-.009	-.135	.893
KeepxWR	.065	.099	.071	.654	.514
KeepxBC	.021	.051	.022	.410	.682
KeepxH	.010	.050	.011	.195	.845
Keepx_E	.033	.048	.033	.690	.491
KeepxL	-.048	.092	-.054	-.525	.600
KeepxP	-.048	.048	-.051	-.984	.326
KeepxS	-.026	.061	-.028	-.432	.666
LosexBSI <sup>(-)</sup>	-.063	.054	-.075	-1.176	.240
LosexGA	-.054	.054	-.068	-.995	.320
LosexTC	.010	.051	.013	.204	.838
LosexWR	.037	.099	.040	.373	.709
LosexBC	-.093	.050	-.105	-1.861	.063
LosexH	.028	.050	.033	.563	.574
LosexE	-.041	.042	-.050	-.971	.332
LosexL	-.048	.095	-.054	-.512	.609
LosexP	.013	.046	.015	.274	.784
LosexS	-.026	.055	-.031	-.467	.641
Appearance	.052	.031	.074	1.692	.091
Motivation	.075	.028	.117	2.681	<b>.008</b>
Soc <sup>(-)</sup>	-.014	.050	-.011	-.279	.780
Marital	-.035	.019	-.070	-1.857	.064
Income	-.001	.014	-.002	-.061	.952
Age	.003	.002	.061	1.575	.116
Parents	.045	.014	.111	3.154	<b>.002</b>

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); dependent variable = weight controlling behaviour.

The final regression model indicated that normal weight women who were more motivated towards their appearance and reported their parents' lower weight, tended to be more involved in weight controlling behaviour (see Table 36).

These results also showed that women with healthy weight (BMI in normal range) who had an intention to keep that weight (which indicated congruence between the weight and intention) or lose it (which indicated incongruence between weight and intention) used to be involved in weight controlling behaviour more often (Table 36).

2.2.3.4.1.2. *Correlates and moderators for weight controlling behaviour in the group of women with increased BMI*

The hierarchical regression analysis was included with two types of intentions (to keep current or lose weight), lifestyle themes, two types of intentions and, biopsychosocial variables in the group of women with increased BMI. The summary of each model indicated no significant change in explained variance in any of the steps ( $p(F \text{ change}) > 0.05$ ), see Table 37). This regression model (Table 38) explained 40.4 percent of the variance of weight controlling behaviour.

Table 37. *The summary of the hierarchical regression model on weight controlling behaviour in the group of women with increased BMI (N=180).*

Model	R	R Square	Adjusted R Square	SE	R Square Change	F Change	Sig. F Change
1	.509	.259	.250	.41786	.259	30.898	.000
2	.545	.297	.247	.41887	.039	.915	.521
3	.592	.350	.259	.41551	.053	1.271	.251
4	.624	.389	.256	.41628	.039	.941	.497
5	.636	.404	.238	.42124	.015	.509	.827

Note. R Square = coefficient of determination; SE = Standard error.

Two significant correlates for weight controlling behaviour including intention to lose weight and higher scores on Harshness supporting lifestyle theme were supported in the group of overweight women. Moreover, additional regression analysis in various groups revealed that WR had negative and Liked by all positive effect on the relation between the intention to keep current weight and weight controlling behaviour (Table 38).

Table 38. The coefficients of the final step of the regression analysis for weight controlling behavior in the group of women with increased BMI (N=180)

	B	SE	Beta	t	Sig.
(Constant)	1.370	1.252		1.095	.276
keep current weight	.302	.158	.197	1.913	.058
lose weight	.507	.077	.526	6.566	<b>.000</b>
BSI <sup>(-)</sup>	-.041	.091	-.071	-.456	.649
GA	.004	.014	.038	.260	.795
TC	-.015	.011	-.214	-1.434	.154
WR	.028	.024	.330	1.143	.255
BC	-.096	.092	-.170	-1.045	.298
H	.063	.030	.323	2.125	<b>.035</b>
E	-.005	.014	-.038	-.328	.743
L	-.023	.038	-.168	-.608	.544
P	-.013	.018	-.090	-.754	.452
S	-.001	.026	-.007	-.044	.965
KeepxBSI <sup>(-)</sup>	.038	.168	.033	.227	.821
KeepxGA	-.038	.195	-.021	-.195	.846
KeepxTC	.133	.167	.096	.795	.428
KeepxWR	-.992	.403	-.708	-2.460	<b>.015</b>
KeepxBC	.301	.207	.238	1.456	.148
KeepxH	-.075	.221	-.054	-.340	.734
Keepx_E	.249	.154	.193	1.616	.108
KeepxL	.930	.432	.640	2.154	<b>.033</b>
KeepxP	.068	.185	.052	.365	.716
KeepxS	.235	.170	.173	1.376	.171
LosexBSI <sup>(-)</sup>	.012	.109	.015	.107	.915
LosexGA	-.086	.104	-.116	-.827	.410
LosexTC	.085	.107	.118	.791	.431
LosexWR	-.149	.184	-.218	-.807	.421
LosexBC	.106	.110	.150	.961	.338
LosexH	-.156	.100	-.215	-1.553	.123
LosexE	.000	.085	.000	-.002	.999
LosexL	.050	.177	.071	.284	.777
LosexP	-.062	.092	-.070	-.668	.505
LosexS	.108	.117	.137	.920	.359
Appearance	-.011	.077	-.014	-.144	.886
Motivation	.028	.066	.037	.417	.677
Soc <sup>(-)</sup>	-.161	.117	-.121	-1.380	.170
Marital	.001	.038	.002	.032	.974
Income	.022	.034	.052	.665	.507
Age	-.001	.004	-.014	-.157	.875
Parents	.028	.032	.065	.860	.391

Note.<sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = weight controlling behaviour.

## 2.2.4. Interrelatedness of Intuitive Eating, weight-related behaviour and Adlerian lifestyle

The fourth research question addressed the interrelatedness of the Intuitive Eating, behaviour variables (healthy eating, good eating habits, physical activity and weight controlling behaviour), and Adlerian lifestyle themes.

### 2.2.4.1 Association between Intuitive eating and weight-related behaviours

A number of significant relations between general score as well as subscales of the intuitive eating and other behavioural variables were revealed (see Table 39). General score on the Intuitive eating instrument was positively related to good eating habits and negatively to the weight controlling behaviour. Unconditional permission to eat scale was negatively related to all the included behaviour, while other scales of Intuitive eating were related to the behaviours in various directions.

*Table 39. Pearson correlations of the general score and subscales of the Intuitive eating and behavioural variables in total women sample*

	General Score for Intuitive Eating	Subscales for Intuitive Eating			
		UPE	EPR	RHSC	B-FCC
Healthy eating	0.043	-0.383**	0.076*	0.107*	0.458*
Good eating habits	0.209**	-0.216**	0.342**	0.134**	0.168*
Physical activity	-0.040	-0.216**	-0.025	0.025	0.183**
Weight controlling	-0.363**	-0.489**	-0.230**	-0.271**	0.146**

*Note.* \* = Correlation is significant at the 0.05 level (2-tailed); \*\* = correlation is significant at the 0.01 level (2-tailed); UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons, RHSC = Reliance on hunger and satiety cues; B-FCC = Body-Food Congruence subscale.

Relations between the intuitive eating scales and weight related behaviour variables were explored in separate groups of women with decreased, normal and increased BMI (see Appendix 21). Some differences of these relations in between the groups were found. Eating for physical rather than emotional reasons and reliance of the hunger and satiety cues were significantly related to healthier eating in the group of women with increased BMI. However, the same two scales of intuitive eating were negatively related to the weight controlling behaviour in the group of women with normal BMI.

### 2.2.4.2 Association between Intuitive eating and Adlerian lifestyle themes

A Pearson correlation was used to explore the association of general score of the intuitive eating instrument and Adlerian lifestyle themes. The findings included positive relations with BSI, GA major lifestyle theme and the supporting Striving for Perfection and Softness lifestyle themes with the Intuitive eating scales. Additional findings included and negative/inverse relationships with total scores on the Intuitive eating inventory and the BC and Harshness themes (see table 40).

Table 40. Pearson correlations of the general score and subscales of the Intuitive eating Adlerian lifestyle themes in total women sample

		General Score for Intuitive Eating		Subscales for Intuitive Eating		
		Eating	UPE	EPR	RHSC	B-FCC
Adlerian lifestyle themes	BSI <sup>(-)</sup>	-0.131**	0.071*	-0.186**	-0.073*	-0.108*
	GA	0.107**	0.023	0.178**	0.013	-0.042
	TC	-0.046	-0.096**	-0.051	0.003	0.071*
	WR	-0.040	0.014	-0.107**	0.018	0.061
	BC	-0.131**	0.046	-0.224**	-0.014	-0.060
	H	-0.164**	0.047	-0.243**	-0.057	-0.104**
	E	-0.024	-0.090*	0.008	-0.021	0.042
	L	-0.057	0.044	-0.141**	0.014	0.030
	P	0.152**	-0.090*	0.142**	0.176**	0.182**
	S	0.171**	-0.057	0.260**	0.057	0.103**

Note. \* = Correlation is significant at the 0.05 level (2-tailed); \*\* = correlation is significant at the 0.01 level (2-tailed); <sup>(-)</sup> = inverse relation due to the transformation of the variable; UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons; RHSC = Reliance on hunger and satiety cues; B-FCC = Body-Food Congruence subscale; BSI = Belonging/social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness.

In addition the subscales of intuitive eating and unconditional permission to eat were negatively related to BSI, TC, and the supporting themes of Entitlement and Striving for Perfection. Eating for physical rather than emotional reasons was positively related to BSI, GA, Striving for Perfection and Softness themes. Negative relations were supported with WR, BC, Harshness and Liked by all lifestyle supporting themes. Reliance on hunger and satiety was positively related to BSI and Striving for Perfection lifestyle supporting theme. Body-food congruence was positively related to BSI, TC, WR, Striving for Perfection and Softness supporting lifestyle themes and negatively to the harshness theme (see Table 40).



### 2.2.4.3 Association between Intuitive eating and weight management intention

In the model this relation was not included, however additional analysis was conducted trying to identify if Intuitive eating was related to the weight-related intention. An ANOVA analysis revealed a significant differences of intuitive eating between all the groups of various intentions to manage weight (Table 41, for post hoc see Appendix 22).

Table 41. Comparison of the general score of Intuitive eating in various groups of intentions,  $F=36.545$ ,  $p=0.000$ , ( $N=780$ )

	N	Mean	SD	SE	95% CI	
nothing	390	3.5715	.56224	.02847	3.5155	3.6274
keep current	161	3.4402	.56473	.04451	3.3523	3.5281
lose weight	229	3.1838	.49880	.03296	3.1188	3.2487
Total	780	3.4305	.56924	.02038	3.3905	3.4706

Note. SD = standard deviation; SE = standard error associated with B; 95% CI = confidence interval; nothing = no intention to manage weight; keep current = intention to keep current weight; lose weight = intention to lose weight.

The analysis was conducted on all correlates and moderators to identify the relationship between intention to manage weight and intuitive eating. All the lifestyle themes, other biopsychosocial variables and their interaction with the intention were included as possible predictors in the linear regression model (see Appendix 23).

Further the regression analysis with included only significant variables was conducted and explained 26.2 percent of the variance of Intuitive Eating (Table 42).

Intention to manage weight, being concerned with the appearance and perceived higher parents' weight were negatively related to the intuitive eating (see Table 42). However, the variables of being more motivated towards appearance, married and having higher income were positively related to the higher scores on intuitive eating scales.

Table 42. Linear regression analysis on the general score of the Intuitive eating,  $F=39.108$ ,  $p=0.000$ ,  $R$  Square = 0.262 ( $N=780$ )

	B	SE	t	p value
(Constant)	4.541	.158	28.690	.000
Intention	-.168	.021	-7.880	.000
Appearance	-.335	.033	-10.018	.000
Motivation	.199	.031	6.443	.000
SOC	-.175	.052	-3.349	.001
Marital	.054	.020	2.647	.008
Income	.036	.015	2.356	.019
Parents' weight	-.057	.016	-3.643	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Intention = active intention to keep or lose current weight; Appearance = concerned with the appearance; motivation = motivation towards appearance; SOC = perceived social support; marital = 1-single, 2- in a relationship, 3 – lives with a partner or married; income – income for one family member; dependent variable = intuitive eating.

## 2.2.5 Prognostic model for BMI: importance of behavioural variables, Intuitive eating, Age and Parents' weight

The final research question was related to the analysis of possible correlates for body mass index. The hierarchic regression model with several blocks of possible predictors was conducted. The variables were as follow: (1) the biological variables of age and parents' weight, (2) behavioural variables of healthy eating, good eating habits, physical activity and weight controlling behaviour, (3) four scales of Intuitive eating (4) lifestyle themes/personality attributes (5) and other social variables. A summary of the various models is presented in the Table 43. All the inserted variables significantly increased the significance of the model (all p values for F changes <0.001).

The table with the coefficients for model 5 is presented in the Appendix 25. Various types of variables were supported as significant in relation to the BMI.

*Table 43. Summary of the hierarchical regression analysis of Alderian lifestyle and other biopsychosocial variables on BMI*

Model	R	R Square	Adjusted R Square	SE	Change statistics		
					R Square Change	F Change	p value for F Change
1	.435	.189	.187	.06655	.189	91.069	.000
2	.507	.257	.252	.06385	.068	17.871	.000
3	.548	.301	.292	.06212	.043	11.970	.000
4	.583	.340	.323	.06075	.039	4.544	.000
5	.600	.360	.338	.06004	.020	4.618	.000

*Note.* R Square= coefficient of determination; SE = standard error;

Significant predictors in the models(+ = positive relation; - = inverse relation):

- (1) Age (+), Parents' weight (+);
- (2) Age (+), Parents' weight (+) Healthy eating (-) Good eating habits (-) weight controlling behaviour (+);
- (3) Age (+), Parents' weight (+) weight controlling behaviour (+) eating for physical rather than emotional reasons (-), reliance on hunger and satiety cues (-);
- (4) Age (+), Parents' weight (+) weight controlling behaviour (+) eating for physical rather than emotional reasons (-), reliance on hunger and satiety cues (-), BSI (+), GA (+), TC (+), BC (+), P (+), S (-);
- (5) Age (+), Parents' weight (+) weight controlling behaviour (+) eating for physical rather than emotional reasons (-), reliance on hunger and satiety cues (-), BSI (+), GA (+), TC (+), BC (+), P (+), S (-), concerning with the appearance (+), motivation towards appearance (-).

The significant variables created in the final model for BMI, explained 35.6 percent of the variance of BMI (see Table 44).

Age, parents' weight, and weight controlling behaviour were related to higher BMI. However two scales of intuitive eating (eating for physical rather than emotional reasons and reliance on hunger and satiety cues) were related to lower BMI.

Moreover, higher scores on the lifestyle themes of BSI, GA, TC, BC, and Striving for Perfection were significantly related to the higher body mass while the Softness supporting lifestyle theme was associated with BMI (see appendix 25).

Finally, scores on both of the scales on the Appearance schemas Inventory were found as significant correlates in the model for BMI. Motivation to take care of one's appearance was related to lower BMI while being concerned with the appearance was associated with higher BMI (see table 44).

Table 44. The final regression model for BMI,  $F=32.718$ ,  $p=0.000$ ,  $R Square = 0.356$

	B	SE	t	Sig.	95.0% CI	
(Constant)	1.228	.049	25.109	.000	1.132	1.324
Age	.003	.000	12.467	.000	.002	.003
Parents' weight	.007	.002	3.810	.000	.004	.011
Weight controlling behaviour	.032	.005	6.322	.000	.022	.041
EPR	-.010	.003	-3.470	.001	-.015	-.004
RHSC	-.013	.003	-4.483	.000	-.019	-.007
Belonging/ Social interest <sup>(-)</sup>	-.011	.004	-2.872	.004	-.018	-.003
Going along	.002	.001	3.202	.001	.001	.003
Taking charge	.001	.000	1.466	.143	.000	.001
Being Cautious	.007	.003	2.120	.034	.001	.014
Striving for perfection	.002	.001	3.164	.002	.001	.004
Softness	-.002	.001	-2.058	.040	-.004	.000
Appearance	.009	.004	2.119	.034	.001	.018
Motivation	-.020	.004	-5.174	.000	-.028	-.013

Note. <sup>(-)</sup> = inverse relation to the original variable due to transformation; B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval; EPR = eating for physical rather than emotional reasons scale of Intuitive eating; RHSC = reliance on hunger and satiety cues scale of Intuitive eating; Appearance = being concerned with the appearance; Motivation = motivation to take care of one's appearance.

### 2.3. Discussion

The main goal of this study was to explain the mechanisms linking personality dynamics and weight issues by exploring the total sample of women who responded to the online battery of instruments. These mechanisms were also explored in two groups of women with normal and increased BMI. The theoretical model of the weight management process in this study were based on the social cognitive models of the theory of planned behaviour, social cognitive theory and health belief model. The theory of Individual /Adlerian Psychology was employed to explain personality dynamics of the sample in the study. To assess the major construct used to assess personality, lifestyle, the researcher completed a norming study on the and objective instrument validated to measure the construct of lifestyle which was the BASIS Adlerian Scales for Interpersonal Success Lithuanian version (BASIS-A It). At the same time the context of the other biopsychosocial variables related to the present situation was investigated. Furthermore the interrelatedness of Adlerian lifestyle themes, behavioural variables and Intuitive eating were also employed to enhance the understanding of the mechanisms accounting for weight issues in the sample. Finally, the prognostic model for BMI was studied. A number of research questions were addressed. The first part of each question focused on the total female sample under investigation and the second part of the questions addressed two groups of women with normal and increased BMI.

The author believed the value of this study was that it differs from a number of other studies where personality attributes were found as related to BMI or successful weight loss, but with no clear explanation of the why the personality attributes were associated with the weight loss or gain process. The advantage of this study was that the relation between Adlerian lifestyle themes and BMI can be explained by investigating the role how personality impacts or is associated with the weight management process. Moreover the results can be discussed and interpreted from a strong theoretical framework of Individual Psychology.

To follow are the research questions in the study and the findings related to the biopsychosocial and personality factors and the weight process.

**The first research question** investigated in this study was the relationship between Body Mass Index (BMI) and perceived weight situation with the three groups under investigation (total female sample, normal, and increased BMI group). The assumptions that there will be a statistically significant relationship between BMI and perceived weight were supported, however there were some women who used to perceive their weight incorrectly. Women tend to

perceive their weight incorrectly as higher more often than as lower, thus, there were only 22 women who perceived their weight incorrectly as lower.

The role of Adlerian Lifestyle themes for correctly and incorrectly (as lower or higher) perceived weight situation in the context of other biopsychosocial variables consisted of conducting a multinomial logistic regression analysis in the total sample of women in the study. No personality attributes were supported as significant in the model, however there were several biopsychosocial variables that played a significant role for weight perception.

Additional biopsychosocial variables related to weight issues were investigated via the administration and analysis of the questionnaires and inventories which included Appearance Schemas Inventory– Revised (ASI-R) (Cash et al., 2004), the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, Farley, 1988) and a demographic questionnaire. The following section will address some of these findings associated with the first research question.

First, two biological variables of age and parents' weight were related to incorrectly perceived lower weight. Women who reported higher age and lower parents' weight perceived their weight incorrectly as lower. Possibly age and experiences allow women to be less critical of weight issues and become more comfortable with their self-image versus what they view on television or the general media as ideal weight suggestions. Second, the important findings for the total female sample supported the relationship between being concerned with self-appearance and incorrectly perceived higher weight. Women who perceived less social support used to evaluate their weight incorrectly as higher too, which did not support the findings by Teixeira and colleagues (2005) who found no significance of social support for successful weight loss. Finally, women who were younger incorrectly perceived higher weight, which revealed that younger women might be more concerned with their appearance and base their self-worth with their looks more often (Miskinyte & Bagdonas, 2010).

The first research question was also designed to assess the possible differences related to the correlates of perceived weight of women with normal and increased BMI. No Adlerian lifestyle themes correlated in the group of women with normal BMI, however there were some other biopsychosocial variables that were supported as significant correlates for the incorrectly perceived lower or higher weight.

The finding in this study indicated that women with higher BMI tend to overestimate their weight and women with lower BMI used to underestimate their weight situation more often.

Older women in the sample incorrectly perceived lower weight where as younger women incorrectly perceived higher weight. This study showed that women in a relationship or married perceived their weight as higher.

In the group of overweight women, BC was the only variable that appeared to play the significant role related to the perceived weight situation. Higher scale scores on BC were related to incorrect perception of self-weight as lower. This finding revealed several studies that explored the possible correlates of incorrectly perceived weight (Miller et al., 2008; Sutin & Terraciano, 2014). Based on the above personality dynamics of the lifestyle findings, women who were highly sensitized to the effect of others in social situations (BC) contributed to the inability assess one's perceived weight realistically in relation to BMI. In other words this lifestyle theme increased the possibility of incorrect perception of weight situation as normal even when being overweight. These results partially supported the previous research findings that elevated BC scale scores were associated with lower self-esteem and positive correlations with eating disorders (Gaubé, 2010; Belangee, 2006). It might be that women who are overly sensitized to affect of others (BC) may not receive clear and reliable information from others about their weight. Although one might assume that being attuned at a high level to affect of others (BC) would be important in relation to maintaining one's weight additional analysis of the data in this study revealed that attending to the opinion of others in the social context may be problematic. The findings indicated that others may not comfortable confronting directly the overweight issue with an individual and thereby may distort their responses with individuals with weight issues. Peers, friends and family, for example, may be uncomfortable providing candid feedback to the individual. For example, it is polite to tell a friend to see a doctor or take some medicine if he or she has a headache, infection, stomach ailment, or other health related issue. However, it is not polite to confront a person about one's weight issues. So when confronted in a social setting where the person may directly ask "do you think I need to lose some weight" the friend or family member may be more likely to avoid the question or indicate that they do not view it as a problem for the individual.

One may feel comfortable in stating this lifestyle dynamics as risk factor based on the research related to the BC theme in previous studies. The findings in other studies indicate the theme is associated with issues of depression, substance abuse, potential for harassment in the work setting and other health issue (Morton & Wheeler, 1993, Bauman, 1997, Astrauskaite, & Kern, 2011) and health problems (White, 1990, Kern et al., 1996, Kern, Gormley, & Curlette, 2008).

A summary of the findings of the first research question have supported the relationship of the Adlerian lifestyle and incorrectly perceived lower weight only in the group of overweight women. The main finding was that individual lifestyle preferences played the most significant role among overweight women for incorrectly perceived lower weight, while in the group of normal weight women other biopsychosocial variables were found as significant correlates for incorrectly perceived lower or higher weight. These findings supported the idea by Provencher and colleagues (2008) that particular dimensions of personality may contribute, either directly or through their association with other factors, to the weight.

The **second research question** explored the relationship between perceived weight situation and intention to manage (keep current or lose) weight. The assumption, that people who perceived their weight as higher will have an intention or motivation to lose weight, was supported.

The predictive and moderation effect of Adlerian lifestyle themes as well as other biopsychosocial variables was explored separately for the intention to keep weight and the intention to lose weight as it compared to no active intention to manage weight. As expected, perceived weight situation was significantly associated with the intention to lose weight, but not for the intention to keep current weight in total female sample.

In the total female sample, perceived weight situation and personality attributes of the individual lifestyles were not supported as significant correlates for intention to keep current weight. However one of the supporting scales of the lifestyle measurement the Softness scale was found to be associated with individuals in the study who viewed themselves as overweight but had no intentions to lose weight. In other words softness scale findings were associated with the second mistake related to the weight management process (incongruence between perceived weight and intention to manage it). Although the softness scale initially was created as a scale to measure social desirability on the BASIS-A Inventory the authors of the original instrument believe it to also be a measure of self-efficacy and positive view of life. It might be that women, who view their lives in a favourable light, can accept being overweight more easily and therefore have minimal active intentions to lose weight.

In the group of women with normal BMI, perceived weight was found as a significant predictor for the active intention to keep current weight. Striving for Perfection theme was related to more of the intention to maintain current weight in this group, which means that good structuring and planning skills (Striving for perfection) are related not only to the effective problem solving strategies, but also so the effective try to avoid the presents of any problems.

The same as in the total female sample, higher softness used to increase the incongruence between perceived higher weight and intention to lose it in the group of women with normal BMI. Moreover BC theme also contributed to such an incongruence in this group. These attributes indicated two different reasons for the incongruence between perception of higher weight and intention to lose it. High scores of softness indicate more positive view of life, therefore women might not be active in losing weight because they do not see the problem in being overweight (even if perceive their weight as increased). On the other hand women might feel really frustrated about being overweight, but are not active trying to lose weight because of the lack of the coping resources (high BC).

Additional support of the impact of lifestyle dynamics were found in the group of overweight women. There was an inverse relationship between the GA, and the TC lifestyle themes with the intention to lose weight. However the same attributes (GA and TC) had a significant positive effect for the relation between perceived weight and intention to lose it. A possible explanation for these findings is that on the one hand focusing on rules in the social context, and the need of the individual to control self and others could be viewed as risk factors for overweight women in that it interferes with active intention to decrease their weight. Rules-focused women might be less invested or motivated to lose weight because they distort the need of weight control by incorrect estimate of their weight as reflected in the findings in the first research question.

As expected, motivation toward appearance as assessed by the Appearance Schemas Inventory– Revised (ASI-R) (Cash et al., 2004), was significantly related to both active intentions to keep current and lose weight in the total female sample. An additional finding related to parents' weight was that it used to increase the incongruence between perceived weight and active intentions to keep current weight or lose weight. One may infer from these findings that being around overweight people in childhood might change the subjective norms of weight maintenance and, therefore, even if a woman perceives herself as being overweight, it does not necessary mean that she will have active intention to lose it. This finding supported some explanations related to the importance of parents' weight. Some authors suggested that perception of higher parents' weight as a reason for being overweight interferes with the individual need to lose weight due to adult images that over weight is acceptable, lack of parent support, or that weight may be related to some form of genetic aberrations in the body (Frosch, Mello, & Lerman, 2005; Harvey-Berino et al., 2001; Ogden, 2000; Wamsteker et al., 2005). Additionally, age and perceived social support were negatively related to the active intention to lose weight. These findings could be explained as follows. As one ages social pressure related to



appearance may decrease and therefore motivation to lose weight or change may follow. This coupled with the finding in this study that as a woman ages she perceives that she has a higher level of social support. These two conditions may block intentions to change.

Exploration of the other biopsychosocial variables separately in the group of women with normal BMI indicated the significant relation between higher motivation towards the appearance (appearance schemas motivational salience) and both intentions to keep current or lose weight. An intention to lose weight while being in a normal weight range (healthy BMI) can be considered as related to some disordered eating. Such an assumption might be supported by the prior findings which indicated the relation between the negative body image and eating disorders (Stice, Nemeroff, & Shaw 1996), as appearance schemas are a measure for the cognitive component of body image (Cash et al., 2004). Additionally, appearance schemas self-evaluative salience, perceived social support and age were found to be inversely related to the intention to lose weight among women with normal BMI. Another finding in the group of women with normal BMI was that as women get older, perceives more social support and are more concerned about their appearance they have less intention to lose weight. These biopsychosocial variables might be named as preventive ones from the eating disorders among normal weight women. No biopsychosocial variables (except personality attributes) had a predictive value in the group of overweight women.

A summary of the finding for the second research question support the importance of psychological attributes of Adlerian lifestyle themes related to the intention to keep current or lose weight. Furthermore there was support for Adlerian lifestyle themes as conditional (moderating) variables in relation to perceived weight and the intention to manage weight. More of the lifestyle theme personality attributes were found as significant in the group of overweight women, whereas more biopsychosocial variables were found to be significant of the group of women with normal BMI. This is an interesting finding in that it may support the assumption that there is a difference not only in lifestyle personality dynamics but also in the mechanisms linking personality dynamics and weight issue between normal and overweight females. To identify these possible differences the researcher would suggest a qualitative study to explore these findings.

The **third research question** addressed the relation between the intentions to keep current or lose weight and four types of behaviour variables including healthy eating, good eating habits, physical activity and weight controlling behaviour. The analysis was conducted in total female sample and then separately in two groups of normal increased BMI.

The best predictive value of the intention to manage weight was found for the weight controlling behaviour. However intention accounted for minimal variance of healthy behaviour, such as healthy eating, good eating habits and physical activity. This finding revealed an existing problem as it relates to choosing not healthy behaviour, but other (sometimes risky) ways to lose weight, which seems not to work as a long-term solution for weight management (Carrier, Steinhardt, & Bowman, 1994; Tribole & Resch, 1995; Steinhardt, Bezner, & Adams, 1999; Mann et al., 2007; MacDougall, 2010).

After exploring various analysis, two groups of women with the intention to keep current and lose weight were found as similar in relation to healthy eating, good eating habits and physical activity, therefore in the first regression analysis were integrated together into one group of “having active intention to manage weight”. However intention to keep current weight and the intention to lose weight were included in the regression separately in the groups of women with normal and increased BMI.

The healthy eating variable as measured by items of a self-constructed questionnaire by the author was analysed. The findings in the total female sample on the healthy eating indicated an association of the lifestyle attributes of Striving for Perfection and Harshness supporting scales. The Striving for Perfection scale can be considered as an indicator of a person with effective coping resources, better self-view, confidence and physical health (Kern et al., 1996) and the Harshness scale seems to identify individuals who are more critical of themselves than others. Partial support for this finding can be extrapolated from a study of lifestyle themes and diabetic patients which found that patients with higher scores on Striving for Perfection scale on the BASIS-A were more likely to follow the doctor’s recommendations of being timely with insulin injections (Kern et al., 1996).

In the group of women with normal BMI, both intentions to keep current and to lose weight were found as related to healthier eating. The Harshness theme was also found as a significant negative correlate of healthy eating in the group of women with normal BMI, which partially revealed the relation between lower self-esteem and increased weight (Miller & Downey, 1999). This could be interpreted that normal women with negative self-view or who are more critical of themselves will be less involved with healthy eating behaviour. Being overly critical of oneself can be seen as a risk factor for women. This critical self-view has been found to be risk variable in the relation to negative outcomes such as eating disorders, depression, and higher levels of body dissatisfaction (Stice, Nemeroff, & Shaw 1996; Fredrickson & Roberts, 1997; Moradib & Subich, 2002; Agliata & Tantleff-Dunn, 2004).

However, in the group of overweight women no significant lifestyle themes were indicated in direct relation to healthy eating. Yet, Adlerian lifestyle themes of GA and Softness used to increase the relation between the intention to keep current weight and healthy eating; moreover GA increased the relation between the intention to lose weight and healthy eating too. This could mean that overweight women who are rules-focused tend to choose healthy eating when having an intention to keep current or lose weight.

Other findings of interest related to biopsychosocial variables in the total female sample were that women being more concerned about their appearance were less likely to eat healthy. Such a result partially supported the relation between negative body image and eating disorders (Stice, Nemeroff, & Shaw 1996). It was also found that as a women increases in age, are single, more motivated to care for their appearance and more financial secure they adopt more healthy eating habits. They might choose healthier eating habits not because of their weight, but because of their health. All the same bipsychosocial variables were found as significant with the exception for family income when a woman had a normal BMI. Moreover, perceived social support was additionally found as related to healthier eating in the group of women with normal BMI. Concern with the appearance and marital status were found as the same significant correlates in the group of women with increased BMI too. These two variables indicate different reasons for not choosing healthy eating despite women's weight: increased frustration related to the appearance that might lead to lower self-efficacy and having a partner or husband as deterrent situation that might decrease the importance of appearance or bring struggles for choosing healthy food because of not healthy eating habits employed by the partner.

The next analysis addressed Adlerian Lifestyle themes as well as other biopsychosocial variables and **good eating habits**. In the total female women group the Striving for Perfection theme was positively related to good eating habits. After exploring the correlates for good eating habits in separate groups of women with normal and increased BMI, a number of differences was found, yet Striving for perfection remained significantly related to better eating habits in all groups. In the group of normal weight women TC was related to better eating habits and BSI used to increase the relation between the intention to lose weight and good eating habits. The positive finding from a practical application perspective is that if this group have the psychological resources such as good social support, interpersonal skills and the ability to make adjustments in their eating behaviour (BSI), this (even with inadequate intention to lose weight while having normal BMI) may lead to better eating habits (which can be named as healthy weight management strategy.)

.Moreover if the women have an increased need to control their life (TC), this may increase the possibility that good eating habits will be incorporated as one of the weight management strategies.

In the group of overweight women, TC was inversely related to good eating habits, which indicated that overweight women with an increased need to control or in charge of their lives struggles with implementation of good eating habits. It might be explained with their preference for more severe ways to solve their weight issue or even avoid dealing with it, trying to avoid confrontation with the problem as an example that they are not able to control everything in their life. Striving for Perfection and the Entitlement lifestyle attributes had a negative conditional (moderation) effect for the relation between intention to lose weight and good eating habits. This might mean that women with good problem solving and organizational skills coupled with effective stress coping strategies unrelated to their weight management intentions may view good eating habits as a good investment related to fewer health issues, higher energy and quality of life (supported by the relation between Striving for Perfection and good eating habits in total female sample). Therefore overweight women with high Striving for Perfection tend to have good eating habits not because of the intention to lose weight, but because of taking care of their health. Supporting research related to the effect of Striving for Perfection and Entitlement themes revealed the finding on diabetic sample that those patients with higher Striving for Perfection scores were less likely to be late with injections and those with higher scores on Entitlement scale were less cooperative with the recommended program (Kern et al., 1996c). Other biopsychosocial findings from the total female sample indicated that general motivation to take care of one's appearance was positively related to good eating habits. Results related to the direct relation between age and behaviour was the same as with healthy eating – as women get older they adopt have better eating habits.

Motivation towards appearance was that biopsychosocial variable related to better eating habits in all weight groups. Moreover in the group of women with normal weight, reported higher age was also related to better eating habits, while in the group of women with increased BMI, concern with the appearance was that attribute negatively related to good eating habits.

Third, the relation between intention to manage weight and **physical activity** was explored. BC scale scores in the total female sample had a positive moderation effect for the relation between intention to manage weight and physical activity. This could be interpreted that women with the intention to manage weight who felt anxious, sensitized to effect of others, and have concerns of belonging in social situations viewed themselves as more physical active. In

this particular situation physical activity might be seen as not only weight management behaviour but as a stress coping strategy for this group.

In the group of women with normal BMI, both intention to lose and intention to keep current weight were positively related to physical activity. BC was found as the only lifestyle theme with a positive effect between an intention to keep current weight and physical activity. On the one hand high scores on BC scale are related to problems with following the recommendations (Kern et al., 1996), less coping resources or stress monitoring (White, 1990; Kern et al., 1996). However results of the present study indicated that the same lifestyle theme may lead to being more physical active if the women have an intention to keep current weight. In that the BC theme is a measure of a hyper vigilant approach to life individuals with elevated scores on this theme may be much more sensitized to other's opinions related to weight issues. In other words this individual struggles with overcoming the fear of belonging and thereby will do what it takes feel accepted which keeping up one's appearance.

In the group of overweight women only active intention to lose weight (not keep current) was related to being more physical active. TC played the only significant role from all the measures personality attributes. If the women were high on TC, they were less physical active, however, at the same time high TC scores played a positive moderator role between active intention to lose weight and physical activity. This finding may indicate that overweight woman with the intention to lose weight with elevated TC scale scores will be more physical active, but if the overweight women do not have an intention to lose weight, TC will lead to lower physical activity. This finding partially contradicts the previous finding with the diabetic sample where researchers reported the relation between elevated TC scores and skipping or being late with the meals (Kern et al., 1996). However no information about the intention of the participants to follow the recommendations was reported in that study. If they had to report the intention and the skipping or being late with the meals was explored only in the group of those who had an intention to follow the rules the results might have indicated the positive moderation effect of high TC scores for the relation between the intention and actual less skipping the meals.

Other personality correlates of physical activity were also explored in the total female sample. Motivation to take care of the appearance increased the level of physical activity. However being in a relationship or married and of younger age were two factors revealed as the risk ones for being less physical active. In the group of women with normal BMI, overestimating the importance of one's appearance was associated with decreased physical activity, which revealed the findings that overestimating the importance of the appearance is

related to the internalization of social standards and sometimes lead to the opposite than welcome outcomes (Braitman, & Ramanaiah, 2002). No biopsychosocial variables (except intention to manage weight and personality attributes) that were related to the physical activity with the overweight group.

The last behaviour included in this study was the **weight controlling behaviour**. Both the intention to lose and the intention to keep current weight were related to weight controlling behaviour in the total female sample, however no personality attributes played the significant role for this type of behaviour.

In the group of women with normal BMI, there were also no significant personality attributes, however, among overweight women, Harshness lifestyle theme was positively related to weight controlling behaviour, which means that perception of the situation as a challenging (high Harshness) may increase the possibility of from long-term perspective non-effective weight controlling behaviour. Additionally two of the lifestyle themes used to moderate the relation between the intention to keep current weight and weight controlling behaviour: WR used to decrease and Liked by all – increased this relation. As WR lifestyle theme describes how much individuals are concerned about what other think of them and work on to be approved by other (Wheeler & Acheson, 1993), severe weight controlling behaviours are those that are usually questioned as not having the long lasting effect on weight management. On the other hand those women with highly expressed Liked by all theme are able to organize their resources and solve the problem, however do not trust their own judgements to decide upon the behaviour, therefore sometimes it is easier to find some popular diet with clear rules than to decide to change whole habits and find individually the most appropriate way to manage weight.

Furthermore only in the total female sample and in the group of women with normal weight, some other biopsychosocial variables were supported as significant. Being concerned with appearance, reported higher age and parents' higher weight were positively related to weight controlling behaviour in the total female sample.

Motivation towards appearance and increased parents' weight were two additional significant correlates for weight controlling behaviour in the group of women with normal BMI. However, in the group of overweight women, only intention to lose weight and previously presented personality attributes played the significant role for weight controlling behaviour.

The **fourth research question** addressed the interrelatedness of Adlerian lifestyle, behavioural variables, and Intuitive Eating. A number of significant relationships between

Adlerian lifestyle themes and general Intuitive eating measure and the four sub-measures were revealed. The overall general score of intuitive eating was positively related to BSI, GA, Striving for perfection and Softness lifestyle themes and negatively to BC and Harshness themes. Unconditional permission to eat was found as negatively related to BSI, TC, entitlement and Striving for perfection lifestyle themes.

Eating for physical rather than emotional reasons was positively related to BSI, GA, Striving for Perfection and Softness themes. Negative relations were supported with WR, BC, Harshness and Liked by all lifestyle themes. Reliance on hunger and satiety was positively related to BSI and Striving for Perfection lifestyle themes. Body-food congruence was positively related to BSI, TC, WR, Striving for Perfection and Softness and negatively to the Harshness theme. All of these lifestyle themes have supportive research related to psychological well being (White, 1990; Kern et al., 1996).

To follow are some problematic issues related to the Intuitive eating scales the subscale of unconditional permission did not appear to fit the present sample under investigation. This might be because of the context of the study and that participants might have considered this construct as a negative one and therefore were not open with their responses. Also it could be a cultural issue to the Lithuanian sample. The research bases these assumptions on the fact that this scale had negative correlations with others in the instrument and in particular the more reliable BASIS-A instrument. However negative relation between Unconditional permission to eat and body-food congruence scales has been supported and explained by the authors of the instrument (Tylka & Van Diest, 2013). To follow are the findings related to the other scales on the instrument.

A review of the findings indicated that the BSI major scale and the Striving for Perfection supporting scale of the BASIS-A were related to all the scales of Intuitive eating. It means that socially oriented woman with good problem solving, organizational and stress coping skills tend to be intuitive eaters. These two scales of BASIS-A seem to be the mostly related to the good coping resources as well as self-confidence (Curllette, Wheeler, & Kern, 1993). Moreover need to know the social norms and follow them (high GA) as well as perceiving one's life in a more favourable light (high softness) could increase the possibility of being intuitive eater. Moreover, feeling comfortable in social situations (low BC) and positive self-view (low harshness) used to decrease the possibility to eat intuitively. The combination of these attributes above describes the woman that in Adlerian terms could be called as healthy personality with strong ability to cope with various situations. Therefore the construct of intuitive eating as related to healthy

personality traits, might be considered as good solution for those who seek for some weight management strategies. However relationship between personality attributes and Intuitive eating do not supply the study with the information about the effectiveness of intuitive eating for weight management. Therefore the relations between intuitive eating and other weight related behaviours were explored.

First finding of the negative relation between various weight management behaviours and unconditional permission to eat scale supported the prior decision that this scale do not fit with the other scales of the instrument. On the other hand, Tylka and Van Diest (2013) explained the negative relation between unconditional permission to eat and the body-food congruence scale as a normal result. Eating for physical rather than emotional reasons and Reliance of hunger and satiety scales of Intuitive eating were found as significantly related to healthy eating, good eating habits and negatively to weight controlling behaviour. The one scale of Intuitive eating called body-food congruence was positively related to weight control behaviour as well as physical activity. This means that responding the questions of the body-food congruence scale participants used to evaluate not necessary the inner need to eat healthy food, but based this choice more on the consciousness decision to eat healthy, which is more similar to some aspects of the controlling behaviour than the intuitive behaviour.

Some differences between two groups of women with normal and increased BMI occurred. First of all eating for physical rather than emotional reasons and reliance on hunger and satiety were significantly related to healthier eating but only in the group of women with increased BMI. This might mean that if woman with normal BMI learns the principles of Intuitive eating it does not mean that she will be eating healthy. However negative significant relations between eating for physical rather than emotional reasons, reliance on hunger and satiety and weight controlling behaviour were supported only in the group of women with normal BMI. Such a finding brings the idea; those overweight women who include some principles of intuitive eating in their behaviour, at the same time might use some weight controlling strategies.

However in the complex analysis other variables than Lifestyle themes were supported as associated to the Intuitive eating. Profile of typical Intuitive eater could be described as follow: having an intention to manage weight and motivated to take care of her appearance, but not over concerned (does not take appearance as the most important thing in her life) women who is financially secured, has a partner, perceives enough social support and, finally whose parents' are/were not struggling with the weight issue. From the Adlerian perspective such a social



conditions can be seen as supportive for the formation and keeping a healthy personality; and these relations again indirectly support the benefit of Intuitive eating.

The **fifth research question** addressed the possibility to predict BMI. First of all the value of prognostic model which included behavioural variables, intuitive eating, age and parents' weight as possible predictors for BMI was explored. Woman's age and parents' weight were significantly related to higher BMI. Weight controlling behaviour was positively related to higher BMI, however only tendency of the significant negative relation between healthy eating and BMI was found. Two measures of Intuitive eating including eating for physical rather than emotional reasons and reliance on hunger and satiety were related to lower BMI.

Further the significant predictive role of several Adlerian lifestyle themes including BSI, GA, TC, BC and Striving for perfection for higher BMI was revealed. However the Softness theme was related to lower BMI. The findings of the direct relation between personality attributes and BMI emphasized those lifestyle themes that should be mostly addressed in the prevention and intervention strategies in relation to weight issue among women. Before going to the recommendations, each of these personality attributes deserve more explanation from the perspective of Adlerian psychology and their supported role in the weight management process.

### **2.3.1. Generalizing the findings**

Based on the previous studies related to weigh issue and the integration Individual Psychology, Social Cognitive Models, and Intuitive Eating, the present study aimed to identify the interrelatedness of Adlerian personality attributes or Lifestyle themes and weight management variables as potential risk and deterring factors in weight management process in single and integrative analyses, i.e. by examining direct and conditional effects. The findings of the present exploratory study expanded the knowledge about the mechanisms linking personality and weight management process, by exploring Adlerian lifestyle themes separately in number of the relations as possible correlates and conditional (moderating) variables. To increase the generalization of the findings a number of other biopsychosocial variables were extracted from the weight-related literature. Personality variables which were found as significant for weight management used to differ if taking or not taking in account the other biopsychosocial variables.

Moreover the present study was the first analysis of Intuitive Eating as it related to behavioural variables, Adlerian personality attributes and BMI in Lithuanian sample, thus the

construct of Intuitive Eating, which was supported in other countries (Tylka, 2006; Tylka & van Diest, 2013), was also partially supported in the Lithuanian culture.

In summary this was the first attempt to incorporate Adlerian lifestyle, weight management process, based on Social Cognitive Models, and Intuitive Eating. Finally, the prognostic model for BMI was explored including not only variables for healthy behaviour or controlling behaviour, but the measures of Intuitive Eating and Adlerian personality attributes as the predictive variables. Woman's age and parents' weight were supported as significant correlates for BMI. Two scales of Intuitive Eating had a more significant value for BMI than healthy eating, good eating habits or physical activity. These scales included eating for physical rather than emotional reasons and reliance on hunger and satiety. Finally, six of ten measured personality attributes were found as significant in relation to BMI. Further, the role of each of the Adlerian personality attributes related to BMI was discussed so as to acquire a deeper understanding of the mechanisms linking these attributes and higher BMI.

**Role of Lifestyle in overall finding of the study.** Though the study addressed a number of biopsychosocial variables the major thrust of this study was to isolate the benefits of using the BASIS-A Lithuanian version related to weight issues. To follow are presented various findings directly related to the instrument.

*Belonging/Social Interest (BSI).* In the context of other biopsychosocial variables the significance of BSI was limited. It revealed significant effect of the higher BSI for the relation between the intention to lose weight and good eating habits in the group of women with normal BMI. On the other hand the finding that BSI was positively related to higher BMI partially supported previous research on the extraversion trait and higher weight (Miller & Downey, 1999, Roehling, Roehling, & Odland, 2008, Terracciano et al., 2009). However, no clear mechanism linking BSI lifestyle theme and higher BMI was suggested by the results of this study. However a study by Stoltz and his colleagues (2009) indicated that people with high scores on BSI scale regressed or remained the same while using trans-theoretical model to measure weight change. A guess would be that individuals, who have a higher need to be around people and socialize and are engaging, might be more prone to attend social gatherings such as dining or making meals for others as a mean of sharing joy and pleasure. So they may find themselves in situations where they eat and the amount of food is not monitored. If person has some genetic or other predisposition for gaining weight, such a lifestyle attribute might get in a way to control healthy weight.

*Going Along (GA).* Several mechanisms linking GA theme and the weight management process were found in this study and could explain the relationship between higher GA scores and higher BMI. High scores on GA scales were negatively related to the intention to lose

weight among overweight women. Another finding showed the significant effect of GA theme on the relation between the intention to lose weight and healthy eating in the group of overweight women.

From the Adlerian perspective the importance of the connection of the GA theme and BMI might be explained by viewing this scale as one that measures rules-focused behaviour. It could be proposed that the desire to be "the same as others" within the social context could interfere with the individual choosing or avoiding certain foods when the person is eating with others. In other words the need to belong from an Adlerian perspective may be a stronger incentive that possible weight issues in the future. Another explanation could be that although the need to follow the rules social norms increases the possibility of healthy eating, the same need might be related to the unsatisfied requirements for very specific guidelines to follow in order to manage weight successfully in a social appropriate way. Or, as discussed above, if these guidelines exist, the individual might view these as non-acceptable in that the guidelines may be socially not accepted and be perceived by the individual as being different from others. Another possibility might be that individuals with high GA may associate with others where weight is not an issue to them, thus allowing the person to view the weight situation as not an issue, therefore they are less likely to have an intention to lose weight even when having an increased BMI.

*Taking Charge (TC).* TC theme addressed the need of the individual to be in charge of self and others. One would assume that this individual would have little trouble with weight issues in that the TC lifestyle theme points to a person who prides oneself on being in control of one's environment. Some results revealed the benefit of being high on TC scale as it was related to better eating habits and being more physical active for overweight group who had an intention to keep or lose weight. However, TC was one of those attributes related to higher BMI. A possible explanation for the mechanism linking TC and higher weight was also suggested by the results of this study. Higher scores on TC scale were found as negatively related to the intention to lose weight among overweight women. Furthermore high scores on TC were negatively related to the unconditional permission to eat scale of Intuitive eating, which might be one of the explanations for having increased weight due to the negative effect of over controlling the food. Another explanation could be that individuals who are highly sensitized to being controlled by others may reject implementing intervention strategies from an external perspective such as instructions by dieticians, weight control supplements etc. in that the individual may view this as being weak and incompetent which is inconsistent with the person's lifestyle dynamics. Therefore these individuals struggling with weight issues may at a sub conscious level choose not to address the problem of weight for fear of losing control.

Another possibility might be that food may be a safeguarding tendency or coping strategy being used by the individual with elevated TC as a way avoiding other intrapersonal or interpersonal issues. One of major regulations of normal eating is adequate feelings of hunger and fulfilled hunger. Based on the findings in relation to Intuitive Eating (Gast & Hawks, 2000; Caldwell, Baime, & Wolever, 2012; Outland, Madanat, & Rust, 2013), people that overeat may be lacking the natural impulses that alerts a person of his/her hunger needs and satiety. Therefore one could propose that some individuals struggling with weight issues do not possess the appropriate reflective skills to assess if hunger is a result of a real physiological need or, from an Adlerian perspective, a compensatory, secondary gain, or safeguarding tendency.

One of other possible reasons why a person becomes overweight and also develops a lifestyle theme of Taking Charge might be imbedded in early development and the parent's response to the infant's needs. If, for example, in early infancy, the parent unintentionally provided food to an infant when the need was not hunger but was an unfulfilled emotional/psychological need, it may not only "teach" the child a way to take care of his/her emotional or physiological needs, but also may increase the impulse to overcome the experienced frustration (or inferiority in Adlerian terms) by increasingly taking care of him or herself, or in other words - taking charge of his/her own life and situations. These early experiences may result in the adult person who tries to take care of him or her independently and attends his/her emotional needs such as anxiety, stress, or frustration by consuming food. So the sense of control or being in charge of one's emotional needs may develop into a personality dynamic that is used to cope with a number of life's challenges of which weight becomes one of them.

*Being Cautious (BC).* The positive relationship between BC and BMI added additional information to the previous findings. There are several results from this study that explain the mechanism linking BC and weight issue. First of all BC was found as the only risk factor for incorrectly perceived weight situation. Women with higher scores on BC scale used to perceive themselves as being normal weight, while their BMI was increased according to the WHO norms. Moreover, a significant inverse relation between BC and Eating for physical rather than psychological reasons was supported. Findings of this study partially supported prior findings when BC was found as related to eating disorders in several other research studies (Savaiano-Brady, 2001; Belangee, Sherman & Kern, 2003). Higher BC may indicate that a person is more sensitive and has perceived more stressful and unpredictable family experiences in one's life. Furthermore people with high scores on BC scale might have less social support than others and also have diminished skills to listen and hear their body signals of stress (Curllette, Wheeler, & Kern, 1993). If the individual learned early in life that food could serve as a stress reliever,

he/she may continue to use this strategy into adulthood. It also would make sense that it could be more difficult for this individual to develop good eating habits in that stressors are contingent upon one's perception of the event and thereby the individual may feel in less control of stress as well as one's eating behaviour.

*Striving for Perfection (P).* The positive relation between this theme and higher BMI also requires more explanation. The findings of this study indicated a positive role of this theme in weight management process that included the intention to keep current weight in the normal weight group, or the significant relation of the Striving for Perfection with healthy eating and good eating habits. The relation between Striving for Perfection scale and better stress coping strategies as well as better problem solving strategies (Kern et al., 1996) was revealed. However several findings could explain some negative effect of having high scores on Striving for Perfection scale. Before other biopsychosocial variables were included in the model, Striving for Perfection scale was directly related to weight controlling behaviour in the group of women with normal BMI. However weight controlling behaviour was viewed as risk behaviour that increased the possibility of eating disorders (Mann et al., 2007; MacDougall, 2010). Moreover Striving for Perfection theme had a negative effect between intention to lose weight and good eating habits in the group of overweight women. It might be that women with high structuring skills in their life are really frustrated with being not able to solve the weight issue and seek for more quick results related to weight loss. However, this finding was confusing and will require additional studies to clarify or refute it.

*Softness (S).* The Softness scale was related to the lower BMI. One possibility is that people with high scores on the Softness scale just reported more desirable numbers for their weight (knowing that softness scale is also considered as a scale of social desirability). However a number of studies indicated Softness as a positive attribute in various samples (Kern et al., 1995; Newbauer, 1995; Bauman, 1997). Other mechanisms linking the Softness supporting scale and weight management were also supported in this study. Higher scores on the softness scale increased the relation between intention to keep current weight and healthy eating among overweight. Moreover Softness theme used to decrease the relation between the perceived higher weight and intention to lose it in the group of women with normal BMI. Such a finding supported the prior idea that "perceiving one's childhood experience in a favourable light, regardless of the accuracy of those perceptions, is an indicator of greater stress coping resources" (Curlette, Wheeler, & Kern, 1993). In this particular situation women with normal BMI with higher self-confidence (higher Softness) do not have an intention to lose weight and, therefore, avoid psychological and physiological (yo-yo effect) weight issues.

*Other Adlerian themes (wanting recognition (WR), entitlement (E), liked by all (L), harshness (H)).* Although these prior lifestyle theme attributes were found as significant in the prognostic model for BMI, some other Adlerian themes might support the general findings with additional information.

It was interesting that WR theme was supported as significant only in relation to the negative effect for weight controlling behaviour among overweight women in this study, as this lifestyle theme was one of the most significant attributes in prior research on eating disorder (Belangee, 2006).

In the group of overweight women the Entitlement supporting scale on the BASIS-A was found as decreasing the relation between the intention to lose weight and good eating habits.

The Harshness theme was negatively related to the healthy eating behaviour in the total women sample and normal weight group and positively to the weight controlling behaviour in the group of women with increased BMI. Moreover in the group of women with increased BMI, the Liked by all supporting lifestyle theme used to strengthen the relation between the intention to keep current weight and weight controlling behaviour.

In summary, this study clarified several of the mechanisms linking certain Adlerian personality attributes and weight issues. Most of the significance was found in the relation between personality attribute of BC and perception of weight. Moreover, among overweight women personality attributes seemed to be responsible for forming the intention to lose weight. This is in particular significant finding, because intention in number of studies was considered as a very strong correlate of behaviour (Ajzen & Fishbein, 1977; Ajzen, 1985, 1991; Ajzen & Madden, 1986). Finally, the type of behaviour women chose to manage weight was also related to the personality attributes.

However, despite the explained mechanisms linking some personality attributes and weight issue, there are number of limitations and implications for future research that could increase the reliability, generalizability of the findings and, support with additional information about the mechanisms linking personality and weight change dynamics.

### **2.3.2 Limitations and implications for the future research**

As in any research, this study has some limitations. Most of the limitations are related to the methodological issues that could decrease the reliability of the findings.

First, though the online data collection process has been employed more and more in scientific studies, the researcher was aware of the limitations of the procedure, and that face to face or group data collection procedure with a monitor present may have yielded different results.

A second limitation was related to sampling. Although weight issues seem to affect women's well-being more than men, the singular gender sample could be viewed as a limitation related to the generalizability of the study. Therefore a suggestion for a future study should include both genders to assess the similarities and differences between men and women related to weight issues.

A third limitation of the present study was related to psychometric measures of the variables in the study. More precise measures of objective weight and height may have provided additional more valid findings. Moreover, not all of the self-constructed questionnaires had the high internal reliability, therefore some behavioural measures could also be tracked for some time to acquire more correct information.

Forth, a longitudinal study would be of value to explore some weight related predictions, consequences and personality dynamics related to weight change. A longitudinal study would provide the consumer with additional information on behaviours for losing, maintaining or gaining weight.

A fifth idea for future research would be related to inclusion of different measures to directly assess additional variables, which could help to indicate other reasons than weight management for healthy behaviour.

Sixth, the Intuitive eating questionnaire was psychometrically questionable based on some of the findings in this study. The researcher believes it has merit but exploratory and confirmatory factor analysis with a big enough sample may be in order to assess its application to the Lithuanian culture.

Seventh, more specific questions in specific areas of the weight management process should be created for the future research. For example research may investigate one of the explored mistakes in weight management process with possible risk and deterrents for that mistake.

Although this was a quantitative exploratory study, possibly qualitative study that includes qualitative interviews with individuals or focus groups may provide a deeper understanding of

some unexpected findings of the present study (for example not found relation between good eating habits, physical activity and body mass index). Though this study provided some explanations related to personality and weight issues a qualitative study may provide the researcher and consumer with a deeper understanding and personal meaning of the findings in this study.



## CONCLUSIONS

1. Adlerian lifestyle was found as important for incorrectly perceived weight only among overweight women: overweight women who perceived their weight incorrectly as normal had elevated scores on the BC lifestyle theme in compare to those who perceived their weight correctly.

2. The lifestyle theme of Softness used to decrease the relation between perceived weight and the intention to lose it in total female sample.

2.1. In the group of normal weight women, Striving for Perfection theme used to increase the relation between perceived weight and the intention to keep current weight; BC and Softness lifestyle themes used to decrease the relation between perceived weight and intention to lose it.

2.2. In the group of overweight women, Going Along and Taking Charge lifestyle theme were related to the lower intention to lose weight, but at the same time Going Along and Taking Charge were positively related to the congruence between perceived higher weight and the intention to lose weight; Lifestyle theme of BC was inversely related to the intention to keep current weight.

3. In the total female sample the elevated score on the Harshness supporting lifestyle theme was negatively related to healthy eating; Striving for Perfection was positively related to healthy eating and good eating habits; Being Cautious increased the relation between the intention to manage weight and physical activity; No personality attributes were found as significant for weight controlling behaviour.

3.1. In the group of women with normal weight an elevated score on the Harshness theme was negatively related to healthy eating; Striving for Perfection and TC were positively related to good eating habits while BSI increased the relation between the intention to lose weight and good eating habits; BC increased the relation between the intention to keep current weight and physical activity.

3.2. In the group of overweight women GA and Softness lifestyle themes used to increase the relation between the intention to keep current weight and healthy eating; TC was negatively and Striving for Perfection – positively related to good eating habits, while TC used to increase and Entitlement and Liked by all – decrease the relation between the intention to lose weight and good eating habits; TC was related to lower physical activity but at the same time increased the relation between the intention to lose weight and physical activity; Harshness was positively related to weight controlling

behaviour, while WR has negative and Liked by all positive effect for the relation between intention to keep weight and weight controlling behaviour.

4. General score of Intuitive eating was positively related to good eating habits and negatively to weight controlling behaviour. The relationship between general Intuitive eating score and Lifestyle themes were significant but negligible.

4.1. Unconditional permission to eat was negatively, while body-food congruence - positively related to healthy eating, good eating habits, physical activity and weight controlling behaviour. Eating for physical rather than emotional reasons and reliance on hunger and satiety were positively related to healthy eating and good eating habits, and negatively to weight controlling behaviour.

4.2. Eating for physical rather than emotional reasons was inversely moderately related to Being Cautious and Harshness Lifestyle themes, and positively related to Softness Lifestyle theme.

5. Healthy eating, good eating habits and physical activity were not associated with lower body mass index. Age, parents' weight, and weight controlling behaviour were related to higher BMI, while eating for physical rather than emotional reasons and reliance on hunger and satiety to lower BMI. Belonging/Social Interest, Going Along, Being Cautious and Striving for Perfection themes were related to the higher BMI while the Softness theme was related to lower BMI. Being concerned with the appearance was related to higher BMI, while motivation to take care of self-appearance to lower BMI.

## PRACTICAL IMPLICATIONS

**Intervention guidelines according to the Lifestyle.** The researcher's intentions for this study were not only to identify empirical findings related to the mechanisms of weight management with women but also provide the clinician consulting with women with weight issues added insights on the most effective strategies to work with individuals related to various lifestyle dynamics. It could be proposed that one of the shortcomings with diet regimens, treatment strategies, and self-help books is that few address the personality or lifestyle dynamics that may be additive or interfere with successful treatment outcomes. To follow are some ways counsellors, dieticians and other health professionals may understand the meaning of the lifestyle scales in the context of the findings which then will be followed with possibly more effective ways of consulting or counselling with the individuals struggling with weight issues.

The first, interventions will address the individual with elevated scores on the BSI and Striving for Perfection scales. It is the belief of the researcher that these lifestyle dynamics would reflect individuals with the highest likelihood of change in that the two scales measure psychological wellbeing and effective stress coping and problem solving strategies. Possibly this group simply lacks some form of organized approach to achieve results related to weight management. The best solution would be to encourage individual to use his/her own capabilities and coping resources for this particular issue. Trying to use the ideas of Intuitive eating might be of help as Intuitive eating was found to be related to the healthy personality attributes. The research would view this individual with these lifestyle dynamics to be a much easier client to influence in a positive direction related to weight management.

When working with an overweight person that has elevated Going Along score, the professional may wish to adopt a more directive approach in the session in that this individual will possibly be more interested in rules to follow from the expert. To be of most help for such an individual, one may wish to use more cognitive and behavioural techniques such as instructing, using homework assignments, deadlines related to weight loss per week, and constant encouragement. So the helping person will be more effective if he/she will implement an attitude of a coach or instructor with this individual.

If, for example, the professional assessed an individual with an elevated score on the TC scale she/he may wish to communicate with the individual using supportive techniques and placing emphasis on providing the individual with choices in the treatment plan versus telling the individual what they need to do. It would be extremely important to communicate in a way that allows the individual to believe they are making the decision versus the professional. Usually the major roadblock for the health professional will be to avoid or side step

confrontational interactions with the high TC individual. This person is much more sensitized to competitive interactions. In addition, as mentioned earlier, with elevated TC and BMI individuals may have a variety of reasons related to weight issues. Thus the professional may wish to integrate into the treatment plan a method of tracking eating behaviour and emotional states to assess if weight may be used as a symptom of another more important issue or replacement of other needs that need to be attended.

If the individual has an elevated BC scale the professional needs to extend the time of building the relationship and possibly discussing interpersonal issues related to weight issues prior to implementation of a treatment plan. In fact it is the belief of the researcher and the professionals who have developed the BASIS-A that little time should be spent related to the weight issues but extended time should be devoted to discussing the life task concerns of the individual. Success for this person will be dependent on the relationship and intense encouragement during the process.

**Intervention related to the Intuitive Eating.** Women that struggle with weight issue and practitioners that work with them are encouraged to include the ideas of Intuitive eating in their solving strategy, especially to learn to recognise the inner signals for hunger and satiety as well as avoid eating for other than physiological reasons. These two behaviours used to be related to lower body mass index. If a women has good stress coping strategies (e.g. high on BSI or Striving for Perfection) and are not emotional eaters, then the main task is to learn to hear and recognize the body signals; however, if a women are lack of problem solving success and feel frustrated in social situations (e.g. is high on BC), first task would be to learn to cope with stress without a food using some other techniques, relaxation etc. For women who prefer take control of the situation (high TC) Intuitive eating might be acceptable due to the availability to choose what you want to eat, on the other hand for women who need clear rules to follow (high GA), Intuitive eating can support with these rules (not the type or amount of food to consume, but how to learn to understand your body).

There are two Intuitive eating related issues for normal and increased weight women. Overweight women if eat intuitively, usually consumes healthy meal, however healthy eating is not a part of intuitive eating among the normal weight women. Therefore, if presenting the ideas of Intuitive eating for a normal weight women, special attention should be paid to the presenting the benefits of healthy food consumption. Talking about the overweight women, even if trying to follow the suggestions of Intuitive eating, for them it is hard to stop control themselves from certain type of food, especially if they have been involved in food restriction practices for extended periods of time. Maybe tracking the changes, emotions and behaviour could support them with the need to be of control related to weight issue.

Knowing that people who need rules and want to follow them tend to perceive their weight less correctly, the researcher would encourage peers, family members, and in some way the media, that avoiding honesty with the individual with weight issues may be encouraging the individual to participate in faulty and unhealthy eating habits. Though difficult, in that each of us usually wish to be polite, non-judgemental, and respectful with a person who is overweight the findings of this study indicate that those of us who have difficulty addressing these issue of weight with individuals with weight issues may be indirectly encouraging these individual to continue unhealthy eating habits. The researcher proposes that each of us may need to be more socially responsible and assist the individual struggling with weight issues to receive clear feedback that they have a problem that may impact their health, self-esteem, and psychological wellbeing in the future.

Addressing individuals who perceive themselves as being overweight, special attention by the professional should be given to exploring parents' issues with weight. For one of the findings in this study was that those women who reported their parents as overweight had difficulties assessing their own weight correctly. The researcher would make the suggestion to the professional to explore the individual's family of origin's perception of food intake. It is the researcher beliefs that this norm in the family would be a strong deterrent for the individual to be successful in a weight management program and may decrease the self-efficacy of the individual to consistently follow a weight management program negotiated by a health professional.

In summary the goal of this study was to fold in relation the empirical findings and application of findings. This section attempted to provide the professional with some beginning insights as to treatment strategies and lifestyle dynamics. But the underlying mission of this study was to highlight the importance of healthy eating so as to improve the health of the citizens in Lithuania whose health may be adversely impacted by poor eating habits. It is the researcher's opinion that by increasing the number of women who eat healthy, have good eating habits, are physical active and not involved in unhealthy weight controlling behaviour will increase our acceptance of our bodies and there by improve our self-esteem. Acceptance, tolerance and support should be the targeted values in the society to help every woman to feel better about them. And if their goal is to manage their weight more effective it is the hope that this study could be a small contribution toward their goal.

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## **APPENDIXES**

Table 1.1 Means, standard deviations and correlations of the main variables (N=784)

	M	SD	1	2	3	4	5	6	7
1. BMI	22.73	4.00	1						
BMI(Lg10)	1.35	0.07							
2. Perceived	3.58	0.68		1					
3. Intention					1				
4. Healthy	3.25	0.63				1			
5. Good	5.33	1.28					1		
6. Physical	33.49	27.97						1	
7. Controlling	1.68	0.48							1
8. UPE	3.44	0.67							
9. EPR	3.42	0.94							
10. RHSC	3.37	0.84							
11. B-FCC	3.50	0.83							
12. BSI	33.06	5.95							
BSI (Sqrt) <sup>(c)</sup>	3.50	0.83							
13. GA	30.11	5.27							
14. TC	20.80	6.76							
15. WR	41.07	5.71							
16. BC	18.21	7.15							
BC (Sqrt)	4.18	0.83							
17. H	12.97	2.59							
18. E	16.35	4.18							
19. L	22.09	3.43							
20. P	21.42	3.37							
21. S	19.19	3.30							
22. Self	3.34	0.64							
23. Motiv	3.42	0.70							
24. Soc	5.43	1.17							
Soc (Sqrt) <sup>(c)</sup>	1.56	0.36							
25. Marit									
26. Income	2.90	1.15							
27. Age	32.43	9.80							
28. Parents	2.75	1.14							

*Note.* BMI = body mass index; Perceived = perceived weight situation; Intention= 1 – has no active intention to manage weight, 2 - has an active intention to keep or lose weight; Healthy = healthy eating; Good = good eating habits; Physical = physical activity; Controlling = weight controlling behaviour; UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons; RHSC = Reliance on Hunger and Satiety Cues; B-FCC = Body-food choice congruence; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); Lg10 = Logarithmed variable; Sqrt = Root-Square transformed variable; \*p<0.05; \*\*p<0.01; <sup>(c)</sup>= inverse relation due to the transformation of the variables.

Table 1.2 Correlations of the main variables (N=784)

	8	9	10	11	12	13	14
1. BMI(Lg10)	-.155**	-.255**	-.238**	-.078*	.085*	-.008	.079*
2. Perceived	-.268**	-.291**	-.392**	-.165**	-.059	-.012	.072
3. Intention	-.417**	-.096*	-.203**	.134**	-.073	-.047	.086*
4. Healthy	-.360**	.107**	.129**	.447**	-.105*	.008	.074
5. Good	-.222**	.341**	.137**	.175**	-.190**	.046	.057
6. Physical	-.465**	-.220**	-.261**	.130**	-.089*	-.150**	.148**
7. Controlling	-.200**	-.002	.032	.186**	-.055	-.103**	.047
8. UPE	1	.198**	.326**	-.149**	.102**	.049	-.135**
9. EPR		1	.420**	.172**	-.198**	.167**	-.035
10. RHSC			1	.325**	-.080*	.011	.002
11. B-FCC				1	-.114**	-.061	.090*
12. BSI(Sqrt) <sup>(c)</sup>					1	.004	-.394**
13. GA						1	-.506**
14. TC							1
15. WR							
16. BC							
17. H							
18. E							
19. L							
20. P							
21. S							
22. Self-EV							
23. Motiv							
24. Soc(Sqrt) <sup>(c)</sup>							
25. Marit3							
26. Income							
27. Age							
28. Parents'							

Note. BMI = body mass index; Perceived = perceived weight situation; Intention= 1 – has no active intention to manage weight, 2 - has an active intention to keep or lose weight; Healthy = healthy eating; Good = good eating habits; Physical = physical activity; Controlling = weight controlling behaviour; UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons; RHSC = Reliance on Hunger and Satiety Cues; B-FCC = Body-food choice congruence; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); Lg10 = Logarithmed variable; Sqrt = Root-Square transformed variable; \*p<0.05; \*\*p<0.01; <sup>(c)</sup>= inverse relation due to the transformation of the variables.

Table 1.3. Correlations of the main variables (N=784)

	15	16	17	18	19	20	21
1. BMI(Lg10)	-.019	.115**	.022	-.066	-.030	.114**	-.022
2. Perceived	-.004	.088*	.062	-.042	-.019	.000	-.037
3. Intention	.078*	-.050	-.029	.043	.054	.075	.039
4. Healthy	-.032	-.086*	-.144**	.023	-.075*	.178**	.134**
5. Good	-.083*	-.127**	-.112**	.020	-.107**	.183**	.169**
6. Physical	.008	-.007	.035	.083*	-.031	.046	.029
7. Controlling	-.024	.014	.023	.038	-.021	.041	.010
8. UPE	.038	.029	0.28	-.079*	-.221**	-.184**	-.041
9. EPR	-.088**	-.219**	-.246**	.041	-.122**	.150**	.251**
10. RHSC	.058	-.003	-.045	.017	.047	.207**	.046
11. B-FCC	.102**	-.044	-.072	.067	.067	.188**	.097*
12. BSI(Sqrt) <sup>(c)</sup>	-.097*	.297**	.393**	-.230**	.071	-.465**	-.610**
13. GA	-.085*	-.412**	-.465**	-.234**	-.047	.098*	.326**
14. TC	.279**	.062	.071	.418**	.109**	.266**	.074
15. WR	1	.048	-.048	.105*	.890**	.312**	.027
16. BC		1	.519**	-.203**	.095*	-.288**	-.553**
17. H			1	-.083*	.015	-.320**	-.521**
18. E				1	.034	.129**	.127**
19. L					1	.170**	-.098*
20. P						1	.411**
21. S							1
22. Self-EV							
23. Motiv							
24. Soc(Sqrt) <sup>(c)</sup>							
25. Marit3							
26. Income							
27. Age							
28. Parents'							

Note. BMI = body mass index; Perceived = perceived weight situation; Intention= 1 – has no active intention to manage weight, 2 - has an active intention to keep or lose weight; Healthy = healthy eating; Good = good eating habits; Physical = physical activity; Controlling = weight controlling behaviour; UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons; RHSC = Reliance on Hunger and Satiety Cues; B-FCC = Body-food choice congruence; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivation towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); Lg10 = Logarithmed variable; Sqrt = Root-Square transformed variable; \*p<0.05; \*\*p<0.01; <sup>(c)</sup>= inverse relation due to the transformation of the variables.

Table 1.4. Correlations of the main variables (N=784)

	22	23	24	25	26	27	28
1. BMI(Lg10)	.020	-.148**	-.095**	.047	.015	.384**	.173**
2. Perceived	.224**	-.050	.143**	-.015	-.106**	.048	.174**
3. Intention	.192**	.287**	.032	-.033	-.013	-.074	.096*
4. Healthy	-.065	.169**	-.103**	-.031	.122**	.091*	.046
5. Good	-.117**	.107**	-.115**	.072	.093*	.0152**	.013
6. Physical	.189**	.253**	.012	-.067	-.031	-.018	.169**
7. Controlling	.045	.185**	-.009	-.122**	-.034	-.117**	.011
8. UPE	-.221**	-.184**	-.041	.081*	.067	.099**	-.091*
9. EPR	-.248**	.065	-.219**	.217**	.156**	.029	-.164**
10. RHSC	-.221**	.017	-.181**	.053	.103**	.108**	-.139**
11. B-FCC	-.055	.187**	-.138**	.005	.069	.011	-.029
12. BSI (Sqrt) <sup>(c)</sup>	.086*	-.092*	.312**	-.188**	-.067	-.065	.012
13. GA	-.141**	-.138**	-.098*	.038	-.084*	-.005	-.105**
14. TC	.084*	.171**	-.094	.074	.109**	-.002	.110**
15. WR	.216**	.145**	-.044	.018	.109**	-.168**	.088**
16. BC	.101**	-.068	.368**	-.075*	-.100**	.088*	.089*
17. H	.105**	-.050	.319**	-.176**	-.086*	.007	.045
18. E	.144**	.236**	-.199**	.021	.076*	-.161**	.030
19. L	.225**	.114**	.020	-.010	.101**	-.148**	.062
20. P	-.095*	.104**	-.214**	.083*	.097*	.083*	.024
21. S	-.119**	.070	-.332**	.147**	.093*	.047	-.052
22. Self-EV	1	.520**	.137**	-.092*	-.062	-.176**	.048
23. Motivation		1	-.065	-.048	.055	-.136**	-.016
24. Soc(Sqrt) <sup>(c)</sup>			1	-.297**	-.107*	.086*	.039
25. Marit3				1	.103**	.159**	-.001
26. Income					1	.100**	-.040
27. Age						1	-.092*
28. Parents'							1

Note. BMI = body mass index; Perceived = perceived weight situation; Intention= 1 – has no active intention to manage weight, 2 - has an active intention to keep or lose weight; Healthy = healthy eating; Good = good eating habits; Physical = physical activity; Controlling = weight controlling behaviour; UPE = Unconditional permission to eat; EPR = Eating for physical rather than emotional reasons; RHSC = Reliance on Hunger and Satiety Cues; B-FCC = Body-food choice congruence; BSI = Belonging/Social Interest; GA = Going Along; TC = Taking Charge; WR = Wanting Recognition; BC = Being Cautious; H = Harshness; E = Entitlement; L = Liked by all; P = Striving for perfection; S = Softness; Appearance= Importance of appearance; Motivation = Motivational towards appearance; Soc = Perceived social support; Marital= 1 – single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents = Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); Lg10 = Logarithmed variable; Sqrt = Root-Square transformed variable; \*p<0.05; \*\*p<0.01; <sup>(c)</sup> = inverse relation due to the transformation of the variables.

Table 2.1. Linear regression of BMI for perceived weight situation in various groups: model summaries and information on the significance of BMI (N=784)

	R	R Square	Adjusted R Square	SE	Coefficients for BMI			
					B	SE	t	p value
(1) Three groups of BMI								
Decreased BMI	.257	.066	.050	.711	10.524	5.233	2.011	.049
Normal BMI	.292	.085	.083	.563	3.970	.560	7.095	.000
Increased BMI	.386	.149	.144	.492	4.186	.746	5.615	.000
(2) Three groups of weight change								
Gained	.507	.257	.254	.547	4.183	.412	10.164	.000
The same	.601	.361	.359	.549	6.536	.494	13.238	.000
Lost	.697	.486	.483	.527	6.955	.550	12.647	.000
(3) Three groups of habits' change								
Now is worse	.396	.157	.152	.595	3.012	.508	5.931	.000
The same	.709	.502	.500	.515	8.069	.476	16.951	.000
Now is better	.668	.446	.444	.509	6.430	.411	15.647	.000

Note. R Square= coefficient of determination; SE = standard error; B = unstandardized regression coefficient; dependent variable = perceived weight situation



Table 3.1. The distribution of perceived other's opinion about one's weight situation in three groups of decreased, normal and increased BMI (N=784).

Correlation between perceived other's opinion about one's weight situation and BMI: $r=0.681$ , $p=0.000$		Looking at me the most people would tell that my weight is..					Total
		Very decreased	A little decreased	Normal	A little increased	Very increased	
Groups of BMI	decreased						
	Count	15	31	13	0	0	59
	% within three groups of BMI	25.4%	52.5%	22.0%	0.0%	0.0%	100.0%
	% within Most people would tell..	65.2%	27.0%	2.9%	0.0%	0.0%	7.5%
	normal						
	Count	8	83	386	64	2	543
	% within three groups of BMI	1.5%	15.3%	71.1%	11.8%	0.4%	100.0%
	% within Most people would tell..	34.8%	72.2%	87.5%	38.6%	5.1%	69.3%
	increased						
Count	0	1	42	102	37	182	
% within three groups of BMI	0.0%	0.5%	23.1%	56.0%	20.3%	100.0%	
% within Most people would tell..	0.0%	0.9%	9.5%	61.4%	94.9%	23.2%	
Total	Count	23	115	441	166	39	784
% within three groups of BMI	2.9%	14.7%	56.3%	21.2%	5.0%	100.0%	
% within Most people would tell..	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Table 4.1. Adlerian lifestyle themes in various groups of perceived weight situation (N=784)

		N	Mean	SD	95% CI		F	p value
BSI	perceives lower weight	22	33.64	3.995	31.87	35.41	0.698	0.498
	correct perceived weight	480	33.23	5.897	32.70	33.76		
	perceives higher weight	282	32.74	6.151	32.02	33.46		
	Total	784	33.06	5.945	32.65	33.48		
GA	perceives lower weight	22	29.36	4.635	27.31	31.42	0.252	0.778
	correct perceived weight	480	30.16	5.248	29.69	30.63		
	perceives higher weight	282	30.07	5.368	29.44	30.70		
	Total	784	30.11	5.271	29.74	30.48		
TC	perceives lower weight	22	21.68	4.390	19.74	23.63	0.197	0.821
	correct perceived weight	480	20.76	6.742	20.15	21.36		
	perceives higher weight	282	20.80	6.964	19.99	21.62		
	Total	784	20.80	6.764	20.33	21.27		
WR	perceives lower weight	22	40.14	5.575	37.66	42.61	1.582	0.206
	correct perceived weight	480	40.85	5.590	40.35	41.35		
	perceives higher weight	282	41.53	5.907	40.84	42.22		
	Total	784	41.07	5.710	40.67	41.47		
BC	perceives lower weight	22	19.00	6.079	16.30	21.70	1.121	0.327
	correct perceived weight	480	17.90	7.060	17.27	18.54		
	perceives higher weight	282	18.66	7.382	17.79	19.52		
	Total	784	18.21	7.154	17.70	18.71		
H	perceives lower weight	22	12.86	2.550	11.73	13.99	0.223	0.801
	correct perceived weight	480	12.93	2.589	12.70	13.16		
	perceives higher weight	282	13.05	2.609	12.75	13.36		
	Total	784	12.97	2.593	12.79	13.15		
E	perceives lower weight	22	16.36	3.274	14.91	17.82	0.344	0.709
	correct perceived weight	480	16.25	4.206	15.87	16.63		
	perceives higher weight	282	16.51	4.216	16.02	17.00		
	Total	784	16.35	4.184	16.05	16.64		
L	perceives lower weight	22	21.45	3.188	20.04	22.87	1.361	0.257
	correct perceived weight	480	21.97	3.374	21.67	22.27		
	perceives higher weight	282	22.33	3.523	21.92	22.74		
	Total	784	22.09	3.425	21.85	22.33		
P	perceives lower weight	22	21.68	3.551	20.11	23.26	1.697	0.184
	correct perceived weight	480	21.58	3.329	21.28	21.88		
	perceives higher weight	282	21.13	3.409	20.73	21.53		
	Total	784	21.42	3.367	21.19	21.66		
S	perceives lower weight	22	19.32	2.438	18.24	20.40	1.011	0.364
	correct perceived weight	480	19.32	3.268	19.02	19.61		
	perceives higher weight	282	18.97	3.394	18.57	19.37		
	Total	784	19.19	3.295	18.96	19.42		

Note. SD = standard deviation; 95% CI = confidence interval; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness.

Table 5.1. Multinomial regression analysis for incorrectly perceived lower weight among women with increased BMI, Chi-Square = 23.060,  $p = 0.188$  ( $N=182$ )

	B	SE	Wald	p value	Exp(B)	95% CI for Exp(B)	
Intercept	-14.228	12.779	1.240	.266			
BMI	.145	.101	2.080	.149	1.156	.949	1.409
BSI <sup>(-)</sup>	.097	.158	.374	.541	.908	.666	1.238
GA	.091	.155	.346	.556	1.096	.808	1.485
TC	.103	.128	.646	.422	1.109	.862	1.426
WR	-.504	.344	2.147	.143	.604	.307	1.186
BC	.305	.155	3.880	<b>.049</b>	1.357	1.002	1.839
H	-.179	.309	.338	.561	.836	.456	1.531
E	.171	.192	.794	.373	1.186	.815	1.727
L	.787	.601	1.712	.191	2.196	.676	7.138
P	-.311	.239	1.694	.193	.733	.459	1.170
S	.270	.295	.842	.359	1.310	.736	2.334
Appearance	-1.657	1.290	1.651	.199	.191	.015	2.389
Motivation	1.339	1.407	.906	.341	3.814	.242	60.081
Soc	-.204	.540	.142	.706	.816	.283	2.351
Parents	-.240	.534	.203	.652	.786	.276	2.238
Age	.102	.073	1.950	.163	1.107	.960	1.278
Marital	-1.087	.700	2.408	.121	.337	.085	1.331
Income	.999	.533	3.509	<b>.061</b>	2.715	.955	7.718

Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE = standard error associated with B; Wald = criteria of significance; Exp(B) = expected unstandardized regression coefficient; 95% CI = confidence interval; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight); dependent variable = incorrectly perceived lower weight situation.

Table 6.1. Multinomial logistic regression of perceived weight situation on the intentions to manage weight in various groups: model summaries and information on the significance of perceived weight (N=784)

	Model information			Inten- tion	Coefficients for the perceived weight			
	Chi- Square	p value	Cox and Snell		B	SE	Wald	p value
(1) Three groups of BMI								
decreased	3.967	.138	.068	keep	.582	.570	1.046	.306
				lose	1.856	1.120	2.746	.098
normal	103.047	.000	.173	keep	.390	.198	3.906	.048
				lose	2.036	.229	78.880	.000
increased	14.174	.001	.075	keep	-.547	.522	1.099	.295
				lose	.952	.317	9.015	.003
(2) Three groups of weight change								
gained	31.588	.000	.100	keep	-.336	.286	1.379	.240
				lose	1.061	.236	20.172	.000
the same	50.936	.000	.151	keep	.295	.227	1.696	.193
				lose	1.968	.318	38.356	.000
lost	38.367	.000	.202	keep	.396	.329	1.451	.228
				lose	1.731	.335	26.754	.000
(3) Three groups of habits' change								
now is worse	17.762	.000	.089	keep	-.326	.365	.798	.372
				lose	1.057	.293	13.005	.000
the same	52.290	.000	.168	keep	.361	.240	2.261	.133
				lose	2.067	.340	36.873	.000
now is better	77.931	.000	.225	keep	.353	.271	1.703	.192
				lose	1.970	.281	48.981	.000

Note. Cox and Snell = pseudo R Square (coefficient of determination); B = unstandardized regression coefficient; SE = standard error associated with B; keep = intention to keep current weight; lose = intention to lose weight.

Table 7.1. Lifestyle themes in various groups of weight management intention

		Sum of Squares	DF	Mean Square	F	p value
BSI	Between Groups	2.605	2	1.303	1.871	.155
	Within Groups	540.878	777	.696		
	Total	543.483	779			
BC	Between Groups	1.042	2	.521	.747	.474
	Within Groups	542.019	777	.698		
	Total	543.062	779			
GA	Between Groups	16.344	2	8.172	.293	.746
	Within Groups	21647.728	777	27.861		
	Total	21664.072	779			
TC	Between Groups	192.170	2	96.085	2.098	.123
	Within Groups	35580.367	777	45.792		
	Total	35772.537	779			
WR	Between Groups	248.096	2	124.048	3.823	.022
	Within Groups	25210.072	777	32.445		
	Total	25458.168	779			
H	Between Groups	7.840	2	3.920	.581	.560
	Within Groups	5243.421	777	6.748		
	Total	5251.262	779			
E	Between Groups	28.137	2	14.069	.801	.449
	Within Groups	13653.067	777	17.572		
	Total	13681.204	779			
L	Between Groups	77.896	2	38.948	3.329	.036
	Within Groups	9089.488	777	11.698		
	Total	9167.385	779			
P	Between Groups	60.986	2	30.493	2.699	.068
	Within Groups	8779.086	777	11.299		
	Total	8840.072	779			
S	Between Groups	12.803	2	6.402	.586	.557
	Within Groups	8484.350	777	10.919		
	Total	8497.154	779			

Note. DF = degree of freedom.

Table 7.2. Post-hoc analysis results for WR and Liked by all scales in various groups of intentions

Dependent Variable	INTENTION		Mean Difference		p value	95% CI	
			(I-J)	SE			
WR Tukey HSD	nothing	keep current	-1.473*	.534	.016	-2.73	-.22
		lose weight	-.357	.474	.731	-1.47	.76
	keep current	nothing	1.473*	.534	.016	.22	2.73
		lose weight	1.115	.586	.138	-.26	2.49
Liked by all Tukey HSD	lose weight	nothing	.357	.474	.731	-.76	1.47
		keep current	-1.115	.586	.138	-2.49	.26
	nothing	keep current	-.765*	.320	.045	-1.52	-.01
		lose weight	.040	.285	.989	-.63	.71
Liked by all Tukey HSD	keep current	nothing	.765*	.320	.045	.01	1.52
		lose weight	.805	.352	.058	-.02	1.63
	lose weight	nothing	-.040	.285	.989	-.71	.63
		keep current	-.805	.352	.058	-1.63	.02

Note. SE = Standard error; 95% CI = confidence interval.

Table 7.3. Comparison of WR and Liked by all scales in various groups

		N	Mean	SD	SE	95% CI for Mean	
WR	nothing	390	40.65	5.642	.286	40.09	41.21
	keep current	161	42.12	5.738	.452	41.23	43.02
	lose weight	229	41.01	5.759	.381	40.26	41.76
	Total	780	41.06	5.717	.205	40.66	41.46
L	nothing	390	21.93	3.308	.168	21.60	22.26
	keep current	161	22.70	3.578	.282	22.14	23.25
	lose weight	229	21.89	3.495	.231	21.44	22.35
	Total	780	22.08	3.430	.123	21.84	22.32

Note. SD = Standard deviation; SE = Standard error; 95% CI = confidence interval.

Table 8.1. Multinomial regression on the intention to manage weight, Chi-square=205.260,  $p=0.000$ , Cox and Snell=0.231

INTENTION		B	S.E.	Wald	Sig.	Exp(B)	95% CI for Exp(B)	
keep current	Intercept	-2.479	2.394	1.073	.300			
	Perceived weight	.177	.152	1.362	.243	1.194	.886	1.608
	BSI <sup>(c)</sup>	.106	.176	.365	.546	1.112	.787	1.571
	GA	-.027	.027	1.020	.313	.973	.922	1.026
	TC	.016	.022	.577	.448	1.017	.974	1.061
	WR	.018	.044	.163	.686	1.018	.934	1.110
	BC	-.224	.164	1.867	.172	.799	.580	1.102
	H	-.019	.051	.135	.713	.981	.887	1.085
	E	-.034	.028	1.463	.226	.967	.915	1.021
	L	.042	.070	.353	.553	1.043	.908	1.197
	P	.045	.036	1.530	.216	1.046	.974	1.123
	S	.010	.045	.052	.820	1.010	.924	1.104
	PerceivedxBSI <sup>(c)</sup>	-.239	.170	1.966	.161	.788	.564	1.100
	PerweightxGA	-.132	.161	.675	.411	.876	.639	1.201
	PerweightxTC	-.136	.143	.904	.342	.873	.660	1.155
	PerweightxWR	-.211	.285	.546	.460	.810	.463	1.416
	PerweightxBC	-.070	.143	.243	.622	.932	.704	1.233
	PerweightxHr	.002	.144	.000	.991	1.002	.756	1.327
	PerweightxE	.060	.122	.239	.625	1.062	.835	1.349
	PerweightxL	.278	.282	.976	.323	1.321	.760	2.295
PerweightxP	.029	.114	.066	.797	1.030	.824	1.287	
PerweightxS	-.114	.175	.426	.514	.892	.634	1.256	
lose weight	Intercept	-5.490	2.589	4.499	.034			
	Perceived weight	1.881	.180	109.097	<b>.000</b>	6.557	4.608	9.332
	BSI <sup>(c)</sup>	.022	.183	.015	.904	1.022	.714	1.463
	GA	-.055	.028	3.674	.055	.947	.896	1.001
	TC	-.034	.023	2.233	.135	.966	.924	1.011
	WR	.060	.047	1.611	.204	1.061	.968	1.164
	BC	-.100	.168	.357	.550	.905	.651	1.257
	H	-.054	.053	1.042	.307	.947	.853	1.051
	E	.022	.028	.631	.427	1.023	.968	1.081
	L	-.064	.075	.730	.393	.938	.809	1.087
	P	-.030	.038	.597	.440	.971	.901	1.047
	S	.030	.048	.376	.540	1.030	.937	1.132
	PerweightxBSI <sup>(c)</sup>	-.212	.188	1.273	.259	.809	.560	1.169
	PerweightxGA	.020	.168	.014	.907	1.020	.734	1.418
	PerweightxTC	.272	.165	2.720	.099	1.312	.950	1.813
	PerweightxWR	-.072	.309	.054	.816	.931	.508	1.705
	PerweightxBC	-.347	.165	4.409	<b>.036</b>	.707	.511	.977
	PerweightxH	-.150	.157	.910	.340	.861	.633	1.171
	PerweightxE	-.034	.134	.065	.799	.966	.743	1.258
	PerweightxL	-.060	.308	.038	.845	.942	.515	1.721
PerweightxP	.199	.151	1.729	.189	1.220	.907	1.640	
PerweightxS	-.498	.207	5.782	<b>.016</b>	.608	.405	.912	

Note.<sup>(c)</sup>= inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE (B) = standard error associated with B; 95% CI = confidence interval; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = marital status; Income = monthly income for one family member; Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

Table 8.2. Multinomial logistic analysis of perceived weight, personality and other biopsychosocial variables on the intention to keep current weight, Chi-Square=320.822, p=0.000, Cox and Snell=0.337

INTENTION		B	SE	Wald	Sig.	Exp(B)	95% CI for Exp(B)	
keep current	Intercept	-5.662	2.620	4.671	.031			
	Perceived weight	.172	.178	.942	.332	1.188	.839	1.683
	BSI <sup>(-)</sup>	.093	.185	.254	.615	1.098	.764	1.578
	GA	-.009	.029	.095	.757	.991	.937	1.048
	TC	.014	.022	.371	.542	1.014	.970	1.059
	WR	.011	.047	.060	.806	1.012	.923	1.108
	BC	-.202	.177	1.303	.254	.817	.578	1.156
	H	.000	.055	.000	.999	1.000	.898	1.113
	E	-.055	.030	3.382	.066	.946	.892	1.004
	L	.041	.075	.296	.586	1.041	.900	1.205
	P	.038	.039	.923	.337	1.038	.962	1.121
	S	.007	.047	.021	.885	1.007	.917	1.105
	PerceivedxBSI <sup>(-)</sup>	-.236	.183	1.662	.197	.790	.552	1.131
	PerweightxGA	-.066	.174	.146	.703	.936	.665	1.316
	PerweightxTC	-.063	.155	.168	.681	.939	.693	1.271
	PerweightxWR	-.079	.317	.062	.804	.924	.497	1.719
	PerweightxBC	.001	.164	.000	.993	1.001	.726	1.382
	PerweightxHr	-.001	.160	.000	.996	.999	.730	1.368
	PerweightxE	-.015	.138	.011	.916	.986	.751	1.293
	PerweightxL	.258	.313	.679	.410	1.294	.701	2.387
	PerweightxP	-.014	.135	.010	.919	.986	.757	1.286
	PerweightxS	-.111	.183	.368	.544	.895	.625	1.281
	Appearance	-.122	.216	.317	.573	.885	.580	1.352
	Motivation	.930	.195	22.866	<b>.000</b>	2.535	1.731	3.712
	Perweightxappearance	-.059	.162	.134	.714	.942	.685	1.296
	Perweightxmotivation	.132	.149	.786	.375	1.141	.852	1.527
	SOC <sup>(-)</sup>	.001	.343	.000	.997	1.001	.511	1.962
	PerweightxSOC <sup>(-)</sup>	-.171	.138	1.541	.215	.843	.643	1.104
	Marital	.032	.121	.069	.793	1.032	.814	1.310
	PerweightxMarital	-.101	.125	.657	.418	.904	.708	1.154
	Income	-.060	.092	.427	.513	.942	.787	1.127
	PerweightxIncome	-.042	.124	.115	.734	.959	.752	1.222
Age	.012	.011	1.037	.309	1.012	.989	1.034	
PerweightxAge	.115	.126	.822	.365	1.121	.875	1.437	
Parents	.096	.093	1.070	.301	1.101	.918	1.321	
PerweightxParents	-.274	.120	5.215	<b>.022</b>	.760	.601	.962	

Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE (B) = standard error associated with B; 95% CI = confidence interval; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).



Table 8.3. Multinomial logistic analysis of perceived weight, personality and other biopsychosocial variables on the intention to lose weight

INTENTION	B	SE	Wald	Sig.	Exp(B)	95% CI for Exp(B)	
Intercept	-8.831	2.963	8.880	.003			
Perceived weight	2.262	.217	108.898	<b>.000</b>	9.606	6.281	14.692
BSI <sup>(c)</sup>	-.065	.200	.107	.743	.937	.634	1.385
GA	-.041	.032	1.635	.201	.960	.902	1.022
TC	-.037	.025	2.239	.135	.964	.918	1.011
WR	.029	.052	.311	.577	1.029	.930	1.139
BC	-.099	.190	.271	.602	.906	.625	1.314
H	-.060	.059	1.038	.308	.941	.838	1.057
E	-.024	.031	.605	.437	.976	.918	1.037
L	-.044	.082	.284	.594	.957	.814	1.125
P	-.032	.043	.556	.456	.968	.889	1.054
S	.041	.053	.586	.444	1.042	.938	1.157
PerceivedxBSI <sup>(c)</sup>	-.165	.199	.684	.408	.848	.574	1.253
PerweightxGA	.054	.191	.079	.778	1.055	.726	1.533
PerweightxTC	.308	.177	3.030	.082	1.361	.962	1.925
PerweightxWR	.029	.334	.007	.931	1.029	.535	1.981
PerweightxBC	-.277	.187	2.179	.140	.758	.525	1.095
PerweightxHr	-.150	.173	.746	.388	.861	.613	1.209
PerweightxE	-.034	.151	.051	.821	.966	.719	1.299
PerweightxL	-.065	.333	.038	.845	.937	.488	1.801
PerweightxP	.245	.173	2.006	.157	1.277	.910	1.793
PerweightxS	-.525	.224	5.467	<b>.019</b>	.592	.381	.919
Appearance	-.317	.233	1.858	.173	.728	.461	1.149
Motivation	1.281	.214	35.835	<b>.000</b>	3.602	2.368	5.480
PerweightxAppearance	-.198	.168	1.393	.238	.821	.591	1.140
PerweightxMotivation	.164	.162	1.025	.311	1.178	.858	1.618
SOC <sup>(c)</sup>	.729	.366	3.957	<b>.047</b>	2.072	1.011	4.248
PerweightxSOC <sup>(c)</sup>	-.050	.150	.112	.737	.951	.709	1.276
Marital	-.101	.133	.575	.448	.904	.696	1.174
PerweightxMarital	.112	.134	.698	.403	1.118	.860	1.454
Income	.002	.099	.000	.984	1.002	.825	1.216
PerweightxIncome	-.095	.138	.469	.493	.910	.693	1.193
Age	-.041	.014	8.521	<b>.004</b>	.960	.933	.987
PerweightxAge	.159	.152	1.093	.296	1.172	.870	1.579
Parents	.145	.101	2.091	.148	1.157	.950	1.409
PerweightxParents	-.263	.126	4.322	<b>.038</b>	.769	.600	.985

Note. <sup>(c)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE (B) = standard error associated with B; 95% CI = confidence interval; R<sup>2</sup> = coefficient of determination; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

Table 9.1 Regression analysis for the intention to lose weight in the group of women with normal BMI, Chi-Square=256.396,  $p=0.000$ , Cox and Snell=0.377

INTENTION	B	SE	Wald	Sig.	Exp(B)	95% CI for Exp(B)	
	-9.862	3.770	6.844	<b>.009</b>			
Intercept							
Perceived weight	2.676	.358	55.822	<b>.000</b>	14.530	7.201	29.320
BSI <sup>(-)</sup>	-.213	.251	.718	.397	.809	.495	1.322
GA	-.040	.038	1.111	.292	.961	.891	1.035
TC	-.039	.030	1.740	.187	.962	.908	1.019
WR	.076	.061	1.534	.216	1.079	.957	1.216
BC	-.065	.234	.078	.780	.937	.593	1.481
H	-.061	.071	.740	.390	.941	.818	1.082
E	.002	.039	.003	.955	1.002	.928	1.082
L	-.089	.097	.840	.359	.915	.757	1.106
P	-.044	.053	.677	.411	.957	.863	1.062
S	-.002	.064	.001	.981	.998	.880	1.132
PerceivedxBSI <sup>(-)</sup>	-.484	.296	2.679	.102	.616	.345	1.100
PerweightxGA	-.158	.281	.317	.573	.854	.492	1.481
PerweightxTC	.016	.257	.004	.952	1.016	.614	1.681
PerweightxWR	.064	.527	.015	.903	1.066	.380	2.993
PerweightxBC	-.665	.286	5.416	<b>.020</b>	.514	.294	.900
lose weight PerweightxHr	-.120	.249	.231	.631	.887	.544	1.446
PerweightxE	-.030	.232	.017	.896	.970	.615	1.530
PerweightxL	.026	.500	.003	.959	1.026	.385	2.736
PerweightxP	-.062	.259	.057	.811	.940	.566	1.560
PerweightxS	-.639	.314	4.129	<b>.042</b>	.528	.285	.978
Appearance	-.680	.296	5.266	<b>.022</b>	.507	.283	.906
Motivation	1.632	.267	37.246	<b>.000</b>	5.116	3.029	8.643
PerweightxAppearance	-.095	.256	.139	.709	.909	.550	1.502
PerweightxMotivation	.133	.269	.246	.620	1.142	.675	1.934
SOC <sup>(-)</sup>	.987	.446	4.898	<b>.027</b>	2.683	1.119	6.430
PerweightXSOC <sup>(-)</sup>	.145	.225	.413	.520	1.156	.743	1.797
Marital	-.160	.171	.882	.348	.852	.610	1.190
PerweightxMarital	.053	.219	.059	.808	1.055	.687	1.620
Income	.086	.121	.511	.475	1.090	.860	1.382
PerweightxIncome	-.232	.199	1.368	.242	.793	.537	1.170
Age	-.057	.020	8.106	<b>.004</b>	.945	.908	.982
PerweightxAge	.499	.296	2.839	.092	1.646	.922	2.941
Parents	.032	.126	.065	.799	1.033	.806	1.323
PerweightxParents	-.198	.202	.958	.328	.820	.552	1.220

Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE (B) = standard error associated with B; 95% CI = confidence interval; R<sup>2</sup> = coefficient of determination; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

Table 10.1. Regression analysis for the intention to keep current weight among overweight women, Chi-Square=120.733,  $p=0.000$ , Cox and Snell=0.485

INTENTION	B	SE	Wald	Sig.	Exp(B)	95% CI for Exp(B)
	4.172	23.691	.031	.860		
Intercept						
Perceived weight	1.161	2.302	.254	.614	3.194	.035 291.164
BSI <sup>(c)</sup>	-.796	1.778	.200	.654	.451	.014 14.705
GA	.084	.249	.112	.737	1.087	.667 1.772
TC	.029	.182	.026	.872	1.030	.721 1.472
WR	-.259	.397	.426	.514	.772	.355 1.680
BC	-2.992	1.502	3.967	<b>.046</b>	.050	.003 .953
H	.383	.438	.765	.382	1.467	.622 3.464
E	-.334	.301	1.232	.267	.716	.397 1.291
L	.614	.703	.761	.383	1.847	.465 7.330
P	-.587	.367	2.550	.110	.556	.271 1.143
S	-.245	.463	.279	.597	.783	.316 1.941
PerceivedxBSI <sup>(c)</sup>	-.528	2.148	.060	.806	.590	.009 39.733
PerweightxGA	-.013	1.418	.000	.993	.987	.061 15.894
PerweightxTC	.807	1.419	.324	.569	2.242	.139 36.198
PerweightxWR	.295	2.401	.015	.902	1.343	.012 148.578
PerweightxBC	1.366	1.329	1.055	.304	3.918	.289 53.030
keep current PerweightxHr	-.838	1.271	.435	.510	.433	.036 5.226
PerweightxE	-.237	1.655	.021	.886	.789	.031 20.222
PerweightxL	-.481	2.647	.033	.856	.618	.003 110.776
PerweightxP	1.109	1.484	.558	.455	3.031	.165 55.583
PerweightxS	.151	1.817	.007	.934	1.163	.033 40.950
Appearance	2.850	1.919	2.205	.138	17.287	.402 743.907
Motivation	-1.336	1.790	.557	.455	.263	.008 8.771
PerweightxAppearance	-.758	1.195	.403	.526	.468	.045 4.875
PerweightxMotivation	.492	1.475	.111	.739	1.635	.091 29.447
SOC <sup>(c)</sup>	-1.587	2.728	.339	.561	.204	.001 42.907
PerweightxSOC <sup>(c)</sup>	-.732	.992	.544	.461	.481	.069 3.361
Marital	.104	.853	.015	.903	1.110	.209 5.909
PerweightxMarital	-.537	.885	.367	.544	.585	.103 3.315
Income	.770	.742	1.075	.300	2.159	.504 9.250
PerweightxIncome	-1.005	1.067	.887	.346	.366	.045 2.964
Age	.271	.109	6.234	<b>.013</b>	1.311	1.060 1.622
PerweightxAge	-1.277	.928	1.895	.169	.279	.045 1.718
Parents	.075	.776	.009	.923	1.078	.235 4.935
PerweightxParents	.051	.648	.006	.937	1.053	.296 3.745

Note. <sup>(c)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE (B) = standard error associated with B; 95% CI = confidence interval; R<sup>2</sup> = coefficient of determination; BMI = body mass index; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3- lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)).

*Table 11.1. Outliers of weight-related behaviours*

Behaviour	Criteria for the outliers	Number of answers
Healthy eating	$\leq 1.7$ ; $> 4.9$	12, 3
Good eating habits	$\leq 1.8$	5
Physical activity	$\geq 99$	22
Weight controlling behaviour	$\geq 3.3$	4

Table 12.1. Post-hoc analysis of the behaviour among various groups of intention (after evaluating the equality of variance the criteria was chosen from TUKEY (if equal variances assumed) and Games-Howel (if equal variances were not assumed))

(I) Intention (J) intention			Mean Difference (I-J)	SE	Sig.	95% CI	
<b>HEALTHY EATING</b>							
Games- Howell	nothing	keep current	-.34911*	.05599	.000	-.4810	-.2172
		lose weight	-.31800*	.04567	.000	-.4253	-.2107
	current	nothing	.34911*	.05599	.000	.2172	.4810
		lose weight	.03111	.05792	.853	-.1053	.1675
		weight	.31800*	.04567	.000	.2107	.4253
weight	keep current	-.03111	.05792	.853	-.1675	.1053	
<b>GOOD EATING HABITS</b>							
Tukey HSD	nothing	keep current	-.55972*	.11487	.000	-.8295	-.2900
		lose weight	-.38109*	.10240	.001	-.6215	-.1406
	current	nothing	.55972*	.11487	.000	.2900	.8295
		lose weight	.17863	.12620	.333	-.1177	.4750
		weight	.38109*	.10240	.001	.1406	.6215
weight	keep current	-.17863	.12620	.333	-.4750	.1177	
<b>PHYSICAL ACTIVITY</b>							
Tukey HSD	nothing	keep current	-9.97967*	2.06796	.000	-14.8359	-5.1234
		lose weight	-12.65706*	1.82449	.000	-16.9416	-8.3725
	current	nothing	9.97967*	2.06796	.000	5.1234	14.8359
		lose weight	-2.67739	2.27690	.468	-8.0243	2.6696
		weight	12.65706*	1.82449	.000	8.3725	16.9416
weight	keep current	2.67739	2.27690	.468	-2.6696	8.0243	
<b>WEIGHT CONTROLLING BEHAVIOUR</b>							
Games- Howell	nothing	keep current	-.40136*	.03794	.000	-.4909	-.3118
		lose weight	-.61437*	.03339	.000	-.6930	-.5358
	current	nothing	.40136*	.03794	.000	.3118	.4909
		lose weight	-.21301*	.04576	.000	-.3207	-.1053
		weight	.61437*	.03339	.000	.5358	.6930
weight	keep current	.21301*	.04576	.000	.1053	.3207	

Table 12. 2. Information for homogeneous samples of various intentions in relation to various behaviours

		WHAT YOU TRYING TON	Subset for alpha = 0.05		
		DO WITH YOUR	1	2	
		WEIGHT AT THE			
		MOMENT			
Healthy eating Tukey HSD <sup>a,b</sup>	nothing	379	3.1114		
	lose weight	229		3.4294	
	keep current	159		3.4605	
	Sig.		1.000	.832	
Good eating Tukey HSD <sup>a,b</sup>	nothing	387	5.1266		
	lose weight	227		5.5077	
	keep current	161		5.6863	
	Sig.		1.000	.266	
Physical activity Tukey HSD <sup>a,b</sup>	nothing	385	24.9611		
	keep current	152		34.9408	
	lose weight	220		37.6182	
	Sig.		1.000	.397	
Weight controlling behaviour Tukey HSD <sup>a,b</sup>	nothing	390	1.4061		
	keep current	161		1.8075	
	lose weight	226			2.0205
	Sig.		1.000	1.000	1.000

3

Table 13.1 Linear logistic regression of the intentions to manage weight on healthy eating in various groups of women

	Model information			Coefficients for the intentions			
	F	p value	R Square	B	SE	t	p value
(1) Three groups of BMI							
decreased	4.929	.031	.084	.438	.197	2.220	.031
normal	40.946	.000	.072	.320	.050	6.399	.000
increased	13.958	.000	.072	.303	.081	3.736	.000
(2) Three groups of weight change							
gained	20.261	.000	.065	.295	.066	4.501	.000
the same	22.232	.000	.068	.331	.070	4.715	.000
lost	14.567	.000	.082	.332	.087	3.817	.000
(3) Three groups of weight-related habits' change							
now is worse	7.763	.006	.040	.243	.087	2.786	.006
the same	8.933	.003	.032	.224	.075	2.989	.003
now is better	22.661	.000	.070	.316	.066	4.760	.000

Note. R Square = coefficient of determination; B = unstandardized regression coefficient; SE = standard error associated with B; 95% CI = confidence interval;

Table 14.1. Linear regression analysis of the intention to manage weight, lifestyle themes, other biopsychosocial variables and their interaction with the intention on healthy eating in total women sample,  $F=5.301$ ,  $p=0.000$ ,  $R\text{ Square} = 0.202$  ( $N=767$ )

Model	B	SE	Beta	t	p value
(Constant)	2.459	.497		4.943	<b>.000</b>
Intention2	.310	.042	.261	7.391	<b>.000</b>
BSI <sup>(-)</sup>	.045	.036	.063	1.253	.211
GA	.000	.006	-.001	-.026	.980
TC	.006	.004	.063	1.280	.201
WR	-.006	.009	-.053	-.604	.546
BC	.050	.033	.070	1.508	.132
H	-.029	.011	-.125	-2.727	<b>.007</b>
E	-.005	.006	-.032	-.792	.428
L	-.007	.014	-.042	-.502	.616
P	.020	.007	.114	2.686	<b>.007</b>
S	.005	.009	.026	.498	.618
Intention2 x BSI <sup>(-)</sup>	.019	.030	.032	.628	.530
Intention2 x GA	.024	.030	.039	.794	.427
Intention2 x TC	.035	.029	.061	1.241	.215
Intention2 x WR	-.002	.053	-.003	-.029	.977
Intention2 x BC	.040	.028	.067	1.436	.151
Intention2 x H	.022	.027	.037	.811	.417
Intention2 x E	-.004	.024	-.007	-.171	.865
Intention2 x L	-.044	.051	-.071	-.852	.394
Intention2 x P	.015	.025	.026	.606	.545
Intention2 x S	.025	.030	.042	.813	.416
Intention2 x Appearance	.019	.026	.030	.722	.470
Appearance	-.110	.040	-.118	-2.766	<b>.006</b>
Motivation	.120	.036	.142	3.350	<b>.001</b>
Intention2 x Motivation	-.001	.026	-.001	-.028	.977
SOC <sup>(-)</sup>	-.102	.065	-.062	-1.575	.116
Intention2 x SOC <sup>(-)</sup>	-.038	.023	-.063	-1.613	.107
Marital	-.067	.023	-.102	-2.846	<b>.005</b>
Intention2 x Marital	-.034	.021	-.057	-1.600	.110
Income	.058	.018	.113	3.248	<b>.001</b>
Intention2 x Income	-.022	.021	-.038	-1.081	.280
Age	.006	.002	.101	2.760	<b>.006</b>
Intention2 x Age	-.056	.022	-.093	-2.542	<b>.011</b>
Parents' weight (Parents)	.028	.018	.053	1.545	.123
Intention2 x Parents	.002	.020	.004	.119	.905

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; Intention2=active intention to manage weight (to lose or keep current); BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)). Dependent Variable = healthy eating



Table 15.1 Linear regression of the intentions to manage weight on good eating habits in various groups of women

	Model information			Coefficients for the perceived weight			
	F	p value	R Square	B	SE	t	p value
(1) Three groups of BMI							
decreased	.518	.475	.010	.265	.368	.720	.475
normal	18.625	.000	.034	.454	.105	4.316	.000
increased	6.404	.012	.035	.486	.192	2.531	.012
(2) Three groups of weight change							
gained	17.182	.000	.055	.612	.148	4.145	.000
the same	6.762	.010	.021	.351	.135	2.600	.010
lost	4.261	.041	.025	.417	.202	2.064	.041
(3) Three groups of weight-related habits' change							
now is worse	3.273	.072	.017	.334	.185	1.809	.072
the same	2.565	.110	.009	.244	.152	1.601	.110
now is better	15.965	.000	.050	.610	.153	3.996	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; t = t-value; p value = significance for the coefficient.

Table 16.1. Linear regression analysis of the intention to manage weight, lifestyle themes and other biopsychosocial variables on good eating habits in total female sample,  $F=4.294$ ,  $p=0.000$ ,  $R$  Square = 0.169 ( $N=775$ ).

Model	B	SE	t	Sig.
(Constant)	4.204	1.058	3.975	<b>.000</b>
Intention to manage weight	.433	.089	4.854	<b>.000</b>
BSI <sup>(-)</sup>	-.112	.077	-1.464	.144
GA	.012	.012	.982	.326
TC	.004	.009	.456	.648
WR	-.025	.019	-1.324	.186
BC	-.023	.071	-.326	.745
H	.000	.022	-.022	.983
E	-.012	.012	-.993	.321
L	.007	.030	.238	.812
P	.038	.016	2.397	<b>.017</b>
S	.007	.020	.348	.728
Intention2 x BSI <sup>(-)</sup>	-.103	.064	-1.614	.107
Intention2 x GA	-.014	.063	-.217	.828
Intention2 x TC	-.014	.061	-.236	.814
Intention2 x WR	.009	.112	.083	.934
Intention2 x BC	.003	.059	.044	.965
Intention2 x H	.074	.057	1.291	.197
Intention2 x E	-.073	.050	-1.456	.146
Intention2 x L	.023	.108	.216	.829
Intention2 x P	-.089	.054	-1.661	.097
Intention2 x S	-.027	.065	-.424	.672
Appearance	-.297	.085	-3.518	<b>.000</b>
Intention2 x Appearance	-.060	.056	-1.076	.282
Motivation	.292	.076	3.838	<b>.000</b>
Intention2 x Motivation	.075	.054	1.387	.166
SOC <sup>(-)</sup>	-.125	.139	-.900	.369
Intention2 x SOC <sup>(-)</sup>	-.025	.050	-.504	.615
Marital	.032	.050	.641	.522
Intention2 x Marital	.024	.045	.525	.600
Income	.066	.038	1.724	.085
Intention2 x Income	-.035	.044	-.792	.429
Age	.017	.005	3.551	<b>.000</b>
Intention2 x Age	-.088	.046	-1.892	.059
Parents' weight (Parents)	.023	.038	.603	.546
Intention2 x Parents	-.051	.043	-1.172	.242

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; Intention2=active intention to manage weight (to lose or keep current); BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight)). Dependent Variable = good eating habits.

Table 17.1. Linear regression of the intentions to manage weight on physical activity in various groups of women

	Model information			Coefficients for the perceived weight			
	F	p value	R Square	B	SE	t	p value
(1) Three groups of BMI							
decreased	4.304	.043	.075	16.062	7.742	2.075	.043
normal	39.196	.000	.070	11.680	1.866	6.261	.000
increased	11.564	.001	.062	11.245	3.307	3.401	.001
(2) Three groups of weight change							
gained			.078	11.716	2.365	4.954	.000
the same	20.235	.000 <sup>c</sup>	.064	11.787	2.620	4.498	.000
lost	7.300	.008	.042	10.263	3.798	2.702	.008
(3) Three groups of weight-related habits' change							
now is worse	5.546	.020	.029	6.810	2.891	2.355	.020
the same	12.114	.001	.042	9.312	2.676	3.481	.001
now is better	8.658	.004	.029	8.443	2.869	2.942	.004

Note. B = unstandardized regression coefficient; SE = standard error associated with B; t = t-value; p value = significance for the coefficient.

Table 18.1. Linear regression analysis of the intention to manage weight, lifestyle themes and other biopsychosocial variables on physical activity in total female sample,  $F=3.695$ ,  $p=0.000$ ,  $R$  Square = 0.152 ( $N=757$ )

Model	B	Std. Error	Beta	t	Sig.
(Constant)	51.124	19.268		2.653	<b>.008</b>
Intention to manage weight	10.265	1.633	.230	6.287	<b>.000</b>
BSI <sup>(-)</sup>	-.993	1.394	-.037	-.712	.477
GA	-.403	.218	-.095	-1.846	.065
TC	-.044	.169	-.013	-.261	.794
WR	-.627	.354	-.161	-1.771	.077
BC	.644	1.296	.024	.497	.619
H	-.187	.412	-.022	-.454	.650
E	-.274	.224	-.052	-1.224	.221
L	.567	.559	.087	1.015	.310
P	.310	.291	.047	1.065	.287
S	.095	.359	.014	.264	.792
Intention2 x BSI <sup>(-)</sup>	-.669	1.163	-.030	-.576	.565
Intention2 x GA	1.716	1.159	.076	1.481	.139
Intention2 x TC	2.125	1.120	.097	1.898	.058
Intention2 x WR	-3.327	2.061	-.146	-1.614	.107
Intention2 x BC	2.644	1.081	.119	2.445	<b>.015</b>
Intention2 x H	.675	1.054	.031	.641	.522
Intention2 x E	-.820	.924	-.038	-.888	.375
Intention2 x L	1.749	1.980	.076	.883	.378
Intention2 x P	.423	.978	.019	.433	.665
Intention2 x S	-.524	1.175	-.024	-.446	.656
Appearance	-2.197	1.558	-.063	-1.410	.159
Intention2 x Appearance	.927	1.029	.040	.901	.368
Motivation	4.517	1.410	.142	3.203	<b>.001</b>
Intention2 x Motivation	1.277	1.004	.054	1.272	.204
SOC <sup>(-)</sup>	-1.569	2.539	-.025	-.618	.537
Intention2 x SOC <sup>(-)</sup>	-.494	.910	-.022	-.543	.588
Marital	-2.933	.922	-.118	-3.182	<b>.002</b>
Intention2 x Marital	-.993	.834	-.044	-1.191	.234
Income	-.235	.706	-.012	-.332	.740
Intention2 x Income	.282	.815	.012	.346	.730
Age	-.238	.088	-.103	-2.714	<b>.007</b>
Intention2 x Age	-.608	.860	-.027	-.707	.480
Parents' weight (Parents)	-.517	.693	-.026	-.746	.456
Intention x Parents	.425	.791	.019	.537	.591

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; Intention2=active intention to manage weight (to lose or keep current); BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight). Dependent Variable = physical activity.

Table 19.1. Linear regression of the intentions to manage weight on weight controlling behaviour in various groups of women (N=777)

	Model information			Coefficients for the perceived weight				
	F	p value	R Square		B	SE	t	p value
(1) Three groups of BMI								
decreased	20.512	.000	.436	lose	1.078	.183	5.873	.000
				keep	.344	.108	3.191	.002
normal	142.268	.000	.346	lose	.591	.038	15.659	.000
				keep	.430	.039	11.141	.000
increased	30.898	.000	.259	lose	.519	.066	7.854	.000
				keep	.302	.105	2.882	.004
(2) Three groups of weight change								
gained	48.557	.000	.248	lose	.487	.051	9.602	.000
				keep	.362	.066	5.445	.000
the same	88.189	.000	.364	lose	.665	.056	11.927	.000
				keep	.392	.047	8.319	.000
lost	47.382	.000	.363	lose	.687	.071	9.686	.000
				keep	.433	.080	5.442	.000
(3) Three groups of weight-related habits' change								
now is worse	33.157	.000	.262	lose	.490	.061	8.021	.000
				keep	.262	.081	3.215	.002
the same	55.090	.000	.282	lose	.502	.057	8.761	.000
				keep	.375	.051	7.387	.000
now is better	60.464	.000	.287	lose	.620	.057	10.972	.000
				keep	.420	.063	6.662	.000

Note. B = unstandardized regression coefficient; SE = standard error associated with B; lose = intention to lose weight; keep = intention to keep current weight; dependent variable = weight controlling behaviour.

Table 20.1. The coefficients of the final step of the regression analysis for weight controlling behaviour in total female sample (N=777)

	B	SE	Beta	t	Sig.
(Constant)	1.047	.459		2.284	<b>.023</b>
keep current weight	.372	.036	.323	10.194	<b>.000</b>
lose weight	.574	.033	.559	17.567	<b>.000</b>
BSI <sup>(-)</sup>	.011	.036	.019	.296	.767
GA	-.003	.005	-.033	-.551	.582
TC	-.003	.004	-.041	-.691	.490
WR	.003	.009	.037	.344	.731
BC	-.008	.031	-.013	-.241	.810
H	.003	.010	.019	.343	.732
E	.001	.005	.013	.282	.778
L	-.009	.014	-.069	-.661	.509
P	.001	.007	.010	.198	.843
S	.001	.009	.004	.056	.955
KeepxBSI <sup>(-)</sup>	-.008	.052	-.008	-.155	.877
KeepxGA	-.012	.050	-.012	-.245	.807
KeepxTC	.028	.052	.029	.535	.593
KeepxWR	-.064	.092	-.062	-.690	.491
KeepxBC	.065	.046	.064	1.396	.163
KeepxH	.001	.046	.001	.024	.981
Keepx_E	.051	.043	.049	1.182	.237
KeepxL	.050	.087	.050	.571	.568
KeepxP	.028	.043	.027	.652	.514
KeepxS	.017	.055	.017	.315	.753
LosexBSI <sup>(-)</sup>	-.029	.046	-.033	-.632	.528
LosexGA	-.073	.046	-.088	-1.582	.114
LosexTC	.056	.044	.069	1.283	.200
LosexWR	-.021	.081	-.024	-.266	.790
LosexBC	-.055	.043	-.063	-1.272	.204
LosexH	-.018	.042	-.021	-.420	.675
LosexE	-.046	.036	-.055	-1.287	.199
LosexL	-.018	.078	-.021	-.232	.816
LosexP	-.011	.039	-.012	-.282	.778
LosexS	.024	.047	.028	.507	.612
Appearance	.058	.027	.079	2.151	<b>.032</b>
Motivation	.043	.024	.064	1.775	.076
Soc <sup>(-)</sup>	-.043	.044	-.033	-.973	.331
Marital	-.024	.016	-.047	-1.544	.123
Income	.001	.012	.001	.044	.965
Age	.004	.001	.094	2.978	<b>.003</b>
Parents	.047	.012	.115	3.897	<b>.000</b>

Note. <sup>(-)</sup> = inverse relation due to the transformation; B = unstandardized regression coefficient; SE= standard error associated with B; Beta = standardized coefficient; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivational towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weigh) to 5 (big problems with weight)); dependent variable = weight controlling behaviour.

Table 21.1. Pearson correlations of the general score and subscales of the Intuitive Eating with behavioural variables in the group of women with decreased BMI

		General Score for Intuitive Eating	Subscales for Intuitive Eating			
			UPE	EPR	RHSC	B-FCC
Behaviour variables	Healthy eating	-0.196	-0.456**	-0.215	0.005	0.516**
	Good eating habits	0.156	-0.152	0.298*	0.038	0.188
	Physical activity	-0.511**	-0.357**	-0.454**	-0.298*	-0.080
	Weight controlling	-0.562**	-0.481**	-0.406**	-0.424**	0.000

Note. \* $<0.05$ ; \*\* $p<0.01$

Table 21.2. Pearson correlations of the general score and subscales of the Intuitive Eating with behavioural variables in the group of women with normal BMI

		General Score for Intuitive Eating	Subscales for Intuitive Eating			
			UPE	EPR	RHSC	B-FCC
Behaviour variables	Healthy eating	0.046	-0.332**	0.065	0.081	0.462**
	Good eating habits	0.216**	-0.168**	0.336**	0.132**	0.142**
	Physical activity	0.016	-0.180**	0.017	0.056	0.220**
	Weight controlling	-0.342**	-0.506**	-0.203**	-0.266**	0.172**

Note. \* $<0.05$ ; \*\* $p<0.01$

Table 21.3. Pearson correlations of the general score and subscales of the Intuitive Eating with behavioural variables in the group of women with increased BMI

		General Score for Intuitive Eating	Subscales for Intuitive Eating			
			UPE	EPR	RHSC	B-FCC
Behaviour variables	Healthy eating	0.215**	-0.494**	0.265**	0.324**	0.442**
	Good eating habits	0.296**	-0.367**	0.434**	0.223**	0.249**
	Physical activity	-0.055	-0.281**	-0.008	0.051	0.165*
	Weight controlling	-0.156*	-0.346**	-0.081	-0.051	0.228**

Note. \* $<0.05$ ; \*\* $p<0.01$

Table 22.1. Post hoc analysis for the general score of Intuitive eating in various groups of weight management intentions (N=780)

	(I) INTENTION	(J) INTENTION	Mean Difference (I-J)	SE	p value	95% CI
Games-Howell	nothing	keep current	.13128*	.05283	.036	.0068 .2557
		lose weight	.38767*	.04355	.000	.2853 .4900
	keep current	nothing	-.13128*	.05283	.036	-.2557 - .0068
		lose weight	.25640*	.05538	.000	.1260 .3868
	lose weight	nothing	-.38767*	.04355	.000	-.4900 - .2853
		keep current	-.25640*	.05538	.000	-.3868 - .1260

Note. SE = standard error associated with B; t = t-value; p value = significance for the coefficient.



Table 23.1. Linear regression analysis on the general score of the Intuitive eating  $F=8.632$ ,  $p=0.000$ ,  $R$  Square = 0.289

Model	B	SE	Beta	t	Sig.
(Constant)	4.373	.447		9.793	<b>.000</b>
Intention	-.170	.022	-.260	-7.790	<b>.000</b>
BSI <sup>(-)</sup>	-.029	.032	-.042	-.893	.372
GA	.001	.005	.009	.201	.841
TC	-.005	.004	-.055	-1.187	.236
WR	.005	.008	.051	.634	.526
BC	.031	.030	.046	1.037	.300
H	-.008	.009	-.037	-.873	.383
E	-.003	.005	-.020	-.532	.595
L	-.008	.013	-.051	-.660	.509
P	.011	.007	.064	1.612	.107
S	.002	.008	.014	.293	.769
IntentionxBSI <sup>(-)</sup>	-.014	.027	-.024	-.505	.614
IntentionxGA	-.024	.027	-.042	-.887	.375
IntentionxTC	-.010	.026	-.017	-.374	.709
IntentionxWR	-.029	.047	-.049	-.612	.540
IntentionxBC	-.019	.025	-.033	-.753	.452
IntentionxH	.000	.025	-.001	-.017	.986
IntentionxE	.024	.021	.043	1.129	.259
IntentionxL	.024	.046	.041	.529	.597
IntentionxP	-.009	.023	-.015	-.376	.707
IntentionxS	.027	.027	.048	1.004	.316
Appearance	-.312	.036	-.351	-8.752	<b>.000</b>
IntentionxAppearance	-.011	.024	-.018	-.437	.662
Motivation	.189	.032	.234	5.919	<b>.000</b>
IntentionxMotivation	-.037	.023	-.063	-1.588	.113
Perceived social support(SOC) <sup>(-)</sup>	-.145	.059	-.091	-2.468	<b>.014</b>
IntentionxSOC <sup>(-)</sup>	.026	.020	.047	1.300	.194
Marital status (Marital)	.053	.021	.085	2.535	<b>.011</b>
IntentionxMarital	-.015	.019	-.026	-.784	.433
Income	.040	.016	.081	2.473	<b>.014</b>
IntentionxIncome	-.025	.018	-.045	-1.380	.168
Age	-.001	.002	-.017	-.497	.619
IntentionxAge	.002	.020	.003	.078	.938
Parents' weight (parents)	-.057	.016	-.114	-3.570	<b>.000</b>
Intentionxparents	.007	.019	.012	.358	.720

Note. B = unstandardized regression coefficient; SE = standard error associated with B; Note.<sup>(-)</sup> = inverse relation due to the transformation of the variables; Intention=active intention to manage weight (to lose or keep current); BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; SOC = Perceived social support; Marital = single; 2- in a relationship; 3-lives with a partner or married; Income = monthly income for one family member from 1 (<500lt) to 5 (>4000); Parents= Parents' weight situation (from 1 (no problems with weight) to 5 (big problems with weight). Dependent Variable = Intuitive eating.

Table 24.1 Regression model for BMI,  $F=17.022$ ,  $p=0.000$ ,  $R\text{ Square}=0.360$  ( $N=784$ )

Model	B	SE	t	Sig.	95.0% CI for B	
(Constant)	1.252	.061	20.475	<b>.000</b>	1.132	1.372
Age	.003	.000	11.144	<b>.000</b>	.002	.003
Parents' weight	.008	.002	3.891	<b>.000</b>	.004	.012
Healthy eating	-.003	.005	-.667	.505	-.012	.006
Good eating habits	-.001	.002	-.262	.793	-.004	.003
Physical activity	-4.036E-005	.000	-.482	.630	.000	.000
Weight controlling behaviour	.034	.006	5.928	<b>.000</b>	.023	.045
Unconditional Permission to Eat	-.001	.004	-.157	.876	-.009	.008
Eating for Physical Rather than Emotional Reasons	-.009	.003	-3.171	<b>.002</b>	-.015	-.004
Reliance on Hunger and Satiety Cues	-.012	.003	-3.703	<b>.000</b>	-.019	-.006
Body-Food Choice Congruence	-.002	.004	-.463	.643	-.009	.006
BSI <sup>(c)</sup>	-.010	.004	-2.690	<b>.007</b>	-.018	-.003
1 GA	.002	.001	3.083	<b>.002</b>	.001	.003
TC	.001	.000	1.887	<b>.060</b>	.000	.002
WR	-.001	.001	-1.107	.268	-.003	.001
BC	.008	.004	2.089	<b>.037</b>	.000	.015
H	.000	.001	.138	.890	-.002	.002
E	.000	.001	-.620	.535	-.002	.001
L	.001	.002	.478	.633	-.002	.004
P	.003	.001	3.554	<b>.000</b>	.001	.005
S	-.002	.001	-1.976	<b>.049</b>	-.004	.000
Appearance	.010	.005	2.197	<b>.028</b>	.001	.019
Motivation	-.019	.004	-4.770	<b>.000</b>	-.027	-.011
Perceived social support <sup>(c)</sup>	-.003	.007	-.417	.677	-.017	.011
Marital status	3.005E-005	.003	.012	.991	-.005	.005
Income	.001	.002	.346	.730	-.003	.005

Note.<sup>(c)</sup> = inverse relation due to the transformation of the variables; B = unstandardized regression coefficient; SE = standard error associated with B; BSI = Belonging/Social interest; GA = going along; TC = taking charge; WR = wanting recognition; BC = being cautious; H = harshness; E = entitlement; L = liked by all; P = striving for perfection; S = softness; Appearance = Importance of appearance; Motivation = Motivation towards appearance; Dependent variable = body mass index.



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Doctoral Dissertation

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