Sociocultural aspects of eating disorders

The potential interaction between media exposure and eating disorders related symptomatology

Ph.D. thesis

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Budapest, 2016

INTRODUCTION

The biopsychosocial model of eating disorders (EDs) suggests that there are complex interactions between social, environmental, psychological and biological factors. Among background factors, sociocultural factors play a considerable role in the development of body image dissatisfaction, which is one of the most important risk factor that might lead to EDs. In Western media, a great emphasis is placed on shape, weight and more generally on bodily appearance. The sociocultural factors manifest on different levels and influence body weight regulation indirectly.

The occurrence of EDs is not uniform across cultures and times. It is concentrated in cultures where an abundance of food is available and an obsession with slimness – core characteristic of EDs – can be observed. Despite the fact that EDs have previously been described as culture-bound illnesses, and most common among white Western women, previous studies show that disordered eating and EDs do occur in both non-Western countries and also among ethnic minorities. It is known that mass media have utmost importance in shaping values and norms. The contemporary "slim body ideal", popular diets, and other appearance related contents and expectations often reach people through the media. It is often said that mass media are one of the many reasons for the increasing incidence of EDs, mainly based on the grounds that media images of slender bodies motivate or even force people to try to achieve this slimness.

The lack of studies aiming to investigate the effects of mass media on body image, disordered eating and EDs related symptomatology in Hungary has influenced this study to explore this specific field. Although there are numerous important Hungarian studies depicting the growing tendency of the slimness culture and the popularization of such unrealistic ideals, only a few studies investigated the effects of the influence of media and EDs in the Hungarian population. Although approximately 90% of ED sufferers are women, men are

also affected by EDs. Sociocultural influences affect men to a similar extent as women, although the underlining variables might differ. Among men, EDs are different in nature, and men seek help less often than women do.

Also with the rising rate of obesity and with the Internet offering confidentiality and easy access to a remarkable amount of information about various subjects, more and more people go online for health information and weight management advice and techniques. Despite particular online weight loss programs being successful; most of the information obtained from the Internet has questionable sources and has its pitfalls. It is documented that unhealthy weight control techniques are significantly problematic for adolescents, and these techniques represent a risk factor for EDs and subclinical EDs on a long term.

In the past 80 years, it can be observed that not only Playboy centrefolds, Miss Americas, but also fashion models became steadily thinner. Research findings indicate that this steady decrease in body weight and shape represented by models and beauty contest winners is in a greater contrast of the average body sizes of young women in general. In addition, men are affected as well, as studies described that the body structure of front cover male models on magazines such as Playgirl changed a lot and became significantly more muscular in recent years, creating an unattainable and unrealistic standard for men.

OBJECTIVES

GENERAL OBJECTIVES OF THE STUDY

Currently little is known about the influence of mass media on EDs among Hungarian adults. Therefore, the study's aim was to investigate the possible associations between media exposure and ED related symptomatology (body image, disordered eating habits,

unhealthy weight control techniques and other risk factors for developing EDs) in an adult population in Hungary for the very first time. One of the study's aims was to explore detailed associations between various psychological correlates and the frequency of engaging in reading magazines, watching television programs, and browsing the Internet and possible gender differences. Our focus was on appearance, eating and exercise related media content. There has been no validated research so far regarding mass media influence on body image and EDs related symptomatology in Hungary on adult population, only regarding magazine reading on a sample of young adolescents and high-school students.

The current work consisted of five different parts. The first part of this study aimed to investigate the psychometric properties of three different questionnaires that measure important constructs regarding the societal influence in body image and EDs. Since there was no measure for the societal attitudes concerning physical attractiveness, physical appearance comparison and social comparison the study also aimed to investigate the usability and psychometric properties of the Hungarian version of the *Beliefs About Attractiveness Scale-Revised*; the *Physical Appearance Comparison Scale* and the *Social Comparison Scale*. The study analysed the factor structures, internal consistency, test-retest reliability, and construct validity of these questionnaires.

Secondly, the current work also aimed to explore the psychological correlates regarding various media content exposure. The third part of this study aimed to investigate the associations between weight loss content seeking behaviour in magazines and on the Internet and the use of unhealthy weight reduction methods. Fourth, we aimed to explore the predictors and different pathways in regards to body dissatisfaction and drive for thinness in association with the media implementing multiple indicators and multiple causes (MIMIC) analysis. Lastly, our goal was to determine possible predictors of risk

for developing EDs based on diet, fitness and ED promoting (proED) web page browsing.

METHODS

The participants were recruited via online, convenience sampling. The sample consisted of 820 respondents (39.9% male). Mean age was 26.5 years (SD=4.78, range: 18 - 35 years). The study was circulated on university and college e-mail lists in various cities in Hungary. Self-reported sociodemographic and anthropometric data was collected. Participants provided data on gender, age, education, place of residence, marital status, height (cm) and weight (kg). In the frame of this study, a complex measure was created to assess appearance-focused media exposure. This included magazines, television, and Internet use. The study also implemented the following measures: the Eating Disorder Inventory, the SCOFF questionnaire, the Short Evaluation of Eating Disorders questionnaire (SEED), the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3), the Rosenberg Self-esteem Scale (RSE), Beliefs About Attractiveness Scale-Revised (BAA-R), the Physical Appearance Comparison Scale (PACS), the Social Comparison Scale (SCS), and a measure of dieting habits.

Statistical Analyses

Analyses were conducted using SPSS version 21.0, ROPstat and MPLUS version 7.11 statistical packages. For testing the factor structure of the BAA-R, PACS, and SCS, we used both confirmatory (CFA) and exploratory (EFA) factor analysis. In both cases, we used the robust maximum likelihood estimation method (MLR) which is less sensitive to breaches of normality. We used geomin rotation for EFA. To evaluate the fit of the structural equation modelling (SEM) models the recommended fit indices were used: the Comparative Fit Index (CFI), the Tucker-Lewis Fit Index (TLI), the Root Mean

Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). For CFI and TLI values between 0.90 and 0.95 indicate an acceptable fit, and values greater than 0.95 suggest good fit. RMSEA assesses approximate fit, with values below 0.08 indicating an acceptable fit, values below 0.05 indicating a good fit. The SRMR can take a range of values between 0.0 and 1.0, with 0.0 indicating a perfect fit (i.e., the smaller the SRMR, the better the model fit).

Cronbach's α coefficients were used to estimate the internal consistency of scales. Comparing women and men, Chi-square test was used in case of categorical variables, and independent samples t-test or Mann-Whitney U-test was used for continuous variables. Effect sizes were estimated using Cohen's d, with thresholds of 0.20 for a 'small' effect, 0.50 for a 'medium' effect and 0.80 for a 'large' effect. Linear relationships were tested using correlational analysis (Pearson's correlation or Spearman's rank correlation). The interpretation of the correlation coefficient value was based on Cohen's definition: weak below 0.3, moderate from 0.3 to 0.5, 0.5 and above were considered as strong linear relationships. Multiple binary logistic regression analysis was used to test the predictors for weight reduction methods. The relationship between media exposure and body image dissatisfaction was examined with structural equation modelling (SEM), applying the MLR robust estimator. A multiple indicators and multiple causes (MIMIC) analysis were conducted, where internalization was treated as a latent variable. Risk factors for EDs were tested via multinomial logistic regression analysis.

RESULTS

Questionnaire validation and adaptation

Psychometric analysis of the Beliefs About Attractiveness – Revised questionnaire

Results of the confirmatory factor analysis did not support the theoretical two-factor structure of the questionnaire ($\chi^2_{(171)}$=5124.8, p<0.001; CFI=0.816; TLI=0.792; RMSEA=0.086 [CI90: 0.081; 0.091], SRMR=0.066). Therefore, we used exploratory factor analysis to test the factor structure of the BAA-R questionnaire. The goodness of fit indices of the three-factor solution appeared acceptable ($\chi^2_{(171)}$=5124.8, p<0.001, CFI=0.944, TLI=0.918, RMSEA=0.054 [0.048; 0.060], SRMR=0.030). Item classification was carried out based on these rules: an item belonged exclusively to only one factor when its factor loading of 0.25 was reached only on one factor or if its factor loading was twice as big on one factor compared to its loading on any other factors. Based on this out of 19 items, 14 was unequivocally classified. The first factor consists of the original importance of being attractive and thin items 2, 3, 4, 5, 13 and 15. The second factor consists of the original importance of being physically fit and in-shape items 1, 8, 10, 12, and 17. We identified a third factor as well, which contains item 11, 14 and 19. This factor depicts the importance of experiencing life fulfilment via attractiveness. These items originally belonged to the importance of being thin factor. However, their content depicts more the importance of a life fulfilment, life enjoyment (e.g. “Attractive women lead more fulfilling lives than unattractive women”) than the importance of being thin. The factors showed positive, moderate, and strong linear relationships with each other. Based on the three-factor solution we calculated the scores on the three scales. All further analyses happened with these scales. Internal consistency of the

scales appeared acceptable. Construct validity of BAA-R is supported by the positive, significant relationships with the internalization subscales of the SATAQ-3.

Psychometric analysis of the Physical Appearance Comparison Scale

First of all, the single factor structure of the PACS was tested with confirmatory factor analysis (CFA), however among the goodness of fit indicators the RMSEA did not show an acceptable model fit ($\chi^2_{(10)}$=1220.7, p<0.001; CFI=0.963; TLI=0.927; RMSEA=0.104 [CI90: 0.079–0.131]; SRMR=0.042). Factor loading of the 4th item *(Comparing your "looks" to the "looks" of others is a bad way to determine if you are attractive or unattractive.)* appeared to be very low (0.24, p<0.001). This could be because of the wording of the item since this item is the only reverse item. After deleting the 4th item and repeating the CFA, goodness of fit indices became especially good ($\chi^2_{(6)}$=1047.1, p<0.001; CFI=0.996; TLI=0.988; RMSEA=0.051; RMSEA CI90: 0.008–0.099; SRMR=0.009). Factor loadings ranged from 0.56 to 0.90. During our analyses, we only used the 4 item long version of PACS that has adequate internal reliability. Pearson's correlation was calculated between the original five item long and the new four item long PACS questionnaires. A strong correlation was found between the original and the shorter version (r=0.97, p<0.001), suggesting a high correspondence between the two questionnaires.

Psychometric analysis of the Social Comparison Scale

The confirmatory factor analysis did not support the single factor structure of the questionnaire ($\chi^2_{(55)}$=3883.6, p<0.001; CFI=0.735; TLI=0.669; RMSEA=0.168; RMSEA CI90: 0.159–0.176; SRMR=0.074). During the exploratory factor analysis the goodness of fit of the three-factor solution appeared acceptable ($\chi^2_{(55)}$=3883.6,

p<0.001; CFI=0.966; TLI=0.924; RMSEA=0.080; RMSEA CI90: 0.068 –0.092; SRMR=0.025).

The first factor ("Competency") depicts the skill and ability related social attributes on which base people can make comparisons to each other, the second factor ("Social acceptance") describes the social acceptance, social-belonging related attributes and the third factor ("Physical features") is related to the physical attributes people make comparisons based on. Although the third factor is treated here as "Physical features" it is important to note that one item (*Undesirable/More desirable*) could be explained as a social attribute not just as a physical, it is up to the readers interpretations. Factors showed positive, strong linear relationship with each other. Because the "Physical features" factor only consists of two items we did not use this during our analyses especially that this aspect is already measured by the Physical Appearance Comparison Scale. The scores of the other two scales (Competency and Social acceptance) were calculated using cumulative scaling algorithm. Higher scores on the Competency subscale means that the individual rates themselves more superior, competent, talented, and stronger in comparison to others. Higher scores on the Social acceptance subscale indicates that the individual rated their social ranking compared to others more likely as someone who is more acceptable, more accepted and more likely as an insider. Internal consistency of the scales appeared acceptable. All further analyses were carried out with these scales.

Weight loss content seeking behaviour and the use of weight-reduction methods

To examine the associations between being exposed to weight loss information online and in magazines and weight loss behaviours participants were asked various questions regarding their dieting habits and where and how they obtain information regarding weight loss. Binary logistic regression analysis was used to test the

predictors for weight reduction methods in regards to being exposed to weight loss information in magazines and on the Internet. During the analysis, it was adjusted for BMI, age and education.

Men

According to the results it was found that among men those who reported reading weight loss articles in magazines compared to those who did not read such articles had greater odds of using laxatives at least once a week (OR=12.56, p=0.054) at a tendency level than not using them at all, significantly greater odds for consuming diet or low calorie food at least once a week (OR=5.62, p=0.003) than not consuming such products at this frequency, greater odds of engaging in excessive exercise at least on a weekly basis (OR=4.48, p=0.052) at a tendency level than doing this less often, and had greater odds at a tendency level for at least weekly compensatory behaviour (OR=6.35, p=0.077) than not doing this on a weekly basis. It was also revealed that among men those who reported reading weight loss articles online compared to those who did not, had significantly greater odds for consuming diet or low-calorie food at least on a weekly basis (OR=4.12, p<0.001) than consuming these less often. Those men who reported seeking weight loss content actively in magazines compared to those who did not look for such information had significantly greater odds for weekly self-induced vomiting (OR=22.97, p=0.023), for weekly use of laxatives (OR=131.23, p=0.003) and for weekly purging behaviours (OR=22.70, p=0.021) than having no such reported behaviours at this frequency. Finally, those men who reported seeking weight loss content actively on the Internet compared to those who did not look for such information had significantly greater odds for consuming diet or low calorie food at least once a week (OR=8.03, p<0.001) than eating these less often, and had greater odds of engaging in compensatory behaviours at

least weekly at a tendency level (OR=3.44, p=0.052) than not doing these behaviours this often.

Women

According to the results it was found that among women those who reported reading weight loss articles in magazines compared to those who did not read such articles had significantly greater odds for consuming diet or low calorie food at least once a week (OR=3.27, p<0.001), than not eating them at all, had significantly greater odds of engaging in excessive exercise at least once a week (OR=2.39, p<0.001), than not, significantly greater odds for doing any compensatory behaviour at least once a week (OR=2.94, p<0.001), than not doing these at this frequency. Results also indicated that those women who read weight loss articles on the Internet had significantly greater odds of using laxatives at least once a week (OR=3.04, p=0.018) than not using them this often, significantly greater odds for eating diet or low calorie food at least once a week (OR=5.00, p<0.001), than not eating these foods at this frequency. Furthermore, those women who reported engaging in browsing weight loss articles online had significantly greater odds of engaging in excessive exercise at least once a week (OR=3.47, p<0.001), purging behaviour at least weekly (OR=2.60, p=0.016), and for doing any compensatory behaviours on a weekly base (OR=4.23, p<0.001), than not doing these this often. Women, who said they were in fact actively seeking out weight loss content in magazines had significantly greater odds of engaging in self-induced vomiting at least once a week (OR=5.96, p=0.001), than less often, had significantly greater odds of using laxatives at least weekly (OR=3.75, p=0.001) than not using them this often, had significantly greater odds for eating diet or low calorie food at least once a week (OR=6.24, p<0.001) than not eating them at this frequency. Moreover, those women who said they were actively looking for

weight loss content in magazines had significantly greater odds of engaging in excessive exercise at least weekly (OR=4.09, p<0.001) than doing this less often, significantly greater odds for weekly purging behaviours (OR=4.57, p<0.001) and for weekly compensatory behaviours (OR=6.66, p=0.002) than to engage in such activities less often. Lastly, those women who reported seeking weight loss content online actively had significantly greater odds for self-induced vomiting at least once a week (OR=3.05, p=0.037), use of laxatives at least weekly (OR=3.68, p=0.001), consuming diet or low calorie food at least weekly (OR=6.13, p<0.001), doing excessive exercise at least once a week (OR=3.07, p<0.001), engaging in purging behaviours weekly (OR=3.95, p<0.001) and carrying out some compensatory behaviour at least once a week (OR=4.95, p<0.001) than doing these activities less often.

Multivariate predictors of drive for thinness

The relationship between media exposure and body image dissatisfaction was examined with structural equation modelling (SEM), applying the MLR robust estimator. In the multiple indicators and multiple causes (MIMIC) analysis, internalization was treated as a latent variable. This variable consists of the *Internalization-General* and *Internalization-Athlete* subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-3. During our analysis, separate models were created for men and women. The factor loadings of the internalization subscales on the latent internalization variable were satisfactory (>0.70, p<0.001).

Women

As expected, the subjective importance of various forms of media in getting information about appearance and attractiveness significantly predicted greater pressure from the media to attain the thin ideal, as well as athletic and thin ideal internalization. The pressure from the

media to attain the thin body ideal was also positively associated with internalization of the thin and athletic ideals. As expected, internalization predicted greater physical appearance comparison, body dissatisfaction, and drive for thinness. Higher tendency toward physical appearance comparison predicted greater body dissatisfaction. This, in turn, predicted higher drive for thinness. Higher BMI predicted significantly greater body dissatisfaction, lower internalization at a tendency level and showed a positive association with pressure at a tendency level. Furthermore, BMI was positively associated with age. Finally, education was in a positive association with age and in a negative association with BMI at a tendency level.

The mediation analysis revealed that the relationship between information and drive for thinness was partially mediated by the internalization (standardized $\beta=0.15$, $p<0.001$). A significant indirect path was found from information through internalization and body dissatisfaction to drive for thinness (standardized $\beta=0.06$, $p=0.001$). The analysis also revealed a significant indirect path from information through pressures and internalization to drive for thinness (standardized $\beta=0.11$, $p<0.001$). A significant indirect path was found from information through internalization, physical appearance comparison, and body dissatisfaction to drive for thinness (standardized $\beta=0.04$, $p=0.001$). Another significant indirect path was revealed from information through pressure, internalization and body dissatisfaction to drive for thinness (standardized $\beta=0.04$, $p=0.001$). Finally, a significant indirect path was found from information through pressure, internalization, physical appearance comparison and body dissatisfaction to drive for thinness (standardized $\beta=0.03$, $p=0.001$).

Regarding the relationship between the pressure from media and the drive for thinness, three significant indirect paths were revealed. The first path is from pressure through internalization to drive for

thinness (standardized β=0.22, p<0.001). The second path is from pressure through internalization and body dissatisfaction to drive for thinness (standardized β=0.09, p<0.001). The third indirect path is from pressure through internalization, physical appearance comparison and body dissatisfaction to drive for thinness (standardized β=0.06, p=0.001). Significant indirect paths were found between internalization and the drive for thinness. Mediation analyses revealed an indirect path from internalization through body dissatisfaction to drive for thinness (standardized β=0.16, p<0.001). We also found an indirect path from internalization through physical appearance comparison and body dissatisfaction to drive for thinness (standardized β=0.10, p<0.001). Finally, it seems, that the relationship between physical appearance comparison and drive for thinness is fully mediated by body dissatisfaction (standardized β=0.13, p<0.001).

It is important to note, that because of the strong linear relationships between variables a possible suppressor effect occurred. This could be the reason for the unexpected direct associations, such as the negative relationship between information and drive for thinness, or the negative relationship between pressure and physical appearance comparison. The artefact nature of these associations is further supported by previous bivariate analyses where positive, weak; and moderate linear relationships were observed between these variables.

The model explains 26.2% of the variance in perceived pressure from the media to attain the thin ideal, 60.1% of the variance in internalization, 53.4% of the variance in physical appearance comparisons, 40.9% of the variance in body dissatisfaction and 53.2% of the variance in drive for thinness.

Based on the fit indices, the structural equation model provided an acceptable fit for the data (χ^2=16.63, *df*=7, p=0.02, CFI=0.994, TLI=0.965; RMSEA=0.053 [90% CI: 0.020–0.086], SRMR=0.013).

Men

In our model, we found slightly different associations regarding men. We found that the subjective importance of various forms of media in getting information about appearance and attractiveness significantly predicted a greater pressure from the media to attain the depicted body shape ideals and predicted the internalization of athletic and thin body ideals significantly. The media pressure to attain the thin body ideal was also positively associated with internalization of body ideals and physical appearance comparison. Greater internalization of the body ideals predicted greater body appearance comparison, a greater body dissatisfaction and a higher drive for thinness. Body dissatisfaction associated positively with drive for thinness. Higher BMI predicted significantly greater perceived pressure from the media, greater body dissatisfaction, and higher drive for thinness. Older age associated with the lower importance of information from the media, higher BMI, and higher education levels. Finally, those who finished a higher education internalized the athletic and thin ideals more and were less satisfied with their bodies at a tendency level.

The mediation analysis revealed many significant indirect paths from the information from media to the drive for thinness. This relationship between information and drive for thinness was partially mediated by the internalization (standardized $\beta=0.10$, $p=0.025$). It was also found an indirect path from information through internalization and body dissatisfaction to drive for thinness (standardized $\beta=0.05$, $p=0.016$). Another indirect path was found from information through pressure and internalization to drive for thinness (standardized $\beta=0.03$, $p=0.027$). It seems also to be a weak indirect path from information through pressure and internalization and body dissatisfaction to drive for thinness (standardized $\beta=0.01$, $p=0.039$). The mediation analysis also revealed an indirect path from pressure through internalization to drive for thinness (standardized

β=0.06, p=0.023). We also found an indirect path from pressure through internalization and body dissatisfaction to drive for thinness (standardized β=0.03, p=0.033). Lastly, we found that the relationship between the internalization of sociocultural body ideals and the drive for thinness that was partially mediated by body dissatisfaction (standardized β=0.01, p=0.014).

The model explains 26.5% of the variance in perceived pressure from the media to attain the thin ideal, 45.7% of the variance in athletic and thin ideal internalization, 35.8% of the variance in physical appearance comparisons, 21.9% of the variance in body dissatisfaction and 33.1% of the variance in drive for thinness.

Based on the fit indices, the model's fit is satisfactory (χ^2=12.03, *df=7*, p=0.100, CFI=0.993, TLI=0.962; RMSEA=0.047 [90% CI: 0.000–0.091], SRMR=0.011).

Predictors of risk for developing eating disorders

To define the risk for EDs the following procedure was implemented. Responses were measured on three questionnaires, such as the Eating Disorder Inventory (EDI, Body Dissatisfaction subscale, Drive for Thinness subscale, Bulimia subscale), the SEED questionnaire and the SCOFF questionnaire. Trichotomous and dichotomous variables were created based on the cut-off points of these questionnaires. Binges were defined based on SEED questions requiring at least one reported binging episode per week. Compensatory behaviour was also defined based on SEED requiring that at least one reported compensatory behaviour per week occurred, such as: self-induced vomiting and or use of laxatives and or diet and or excessive sport. The second question of SCOFF was used to identify the feeling of loss of control over eating in case of BED. Six subcategories were developed to reflect ED risk (high risk for developing anorexia nervosa (AN), low risk for developing AN, high risk for developing bulimia nervosa (BN), low risk for developing

BN, risk for binge eating disorder (BED), risk for unspecified feeding and eating disorders (UFED)). All the categories are based on DSM-V. These categories could help later in creating potential prevention and media literacy programs since they should not only focus on the usual EDs but have a wider perspective. The above-mentioned mass media content might be a risk for subthreshold and unspecified EDs as well. All of these categories represent a risk only and make no attempt at a clinical diagnosis based on self-report questionnaires. Those who did not reach the criteria of any of the above-mentioned categories belonged to the no risk group. Multiple binary logistic regression analysis was used to test the predictors for weight reduction methods. During this procedure we aggregated some categories into three main ones: no risk (N=612, 74.6%), at risk for UFED (N=73, 8.9%), at risk for ED (N=135, 16.5%). Based on the results, the vast majority of the present sample belonged to the no risk group (N=612, 74.6%). Furthermore: high risk for AN (N=3, 0.4%), low risk for AN (N=15, 1.8%), high risk for BN (N=24, 2.9%), low risk for BN (N=82, 10.0%), risk for BED (N=11, 1.3%) and UFED (N=73, 8.9%).

Those participants who browse diet, fitness and healthy eating related websites at least once a week, compared to those who visit these sites less often, had significantly greater odds of being at risk for UFED (OR=2.76, p=0.002), and significantly greater odds of being at risk for ED (OR=1.91, p=0.029) as well, than having no risk at all for EDs. Results also showed that those, who visit ProED pages occasionally, compared to those, who never visit these websites, had significantly greater odds of being at risk for ED (OR=3.28, $p<0.001$) than to have no risk at all. Elevated perceived sociocultural pressures and a higher BMI also associated with a greater odds of being at risk for UFED (OR=1.05, p=0.007; and OR=1.08, p=0.003 respectively) and being at risk for ED (OR=1.04, p=0.041; and OR=1.08, p=0.001 respectively) than having no risk at all. Furthermore, lower self-esteem predicted significantly greater odds

of being at risk for UFED and being at risk for ED (OR=0.91, p<0.001; and OR=0.88, p<0.001; respectively). Being female had greater odds of being at risk for UFED at a tendency level (OR=1.85, p=0.054) and significantly greater odds of being at risk for ED (OR=2.43, p=0.002) than having no risk at all. Higher tendency toward physical appearance comparison associated with significantly greater odds of being at risk for ED (OR=1.13, p=0.002) than having no risk at all. Finally, comparing those who are at risk for UFED and those who are at risk for ED along the variables, only one significant relationship was found: higher physical appearance comparison predicted greater odds of being at risk for ED (OR=1.14, p=0.010) than being at risk for UFED. The explained variance by this model is 32.5%.

CONCLUSIONS

The current study contributes to the understanding of appearance-centred media exposure and body image disturbances in Hungary. Although replication is needed on a representative sample, it was found that, in adult Hungarian women and men, many significant connections can be detected between magazine reading, TV watching or online browsing (regarding appearance, diet- and fitness-related topics) and negative body image and the drive for thinness via experiencing pressure from the media, internalizing the slender beauty ideal, and a tendency to engage in body comparison. Furthermore, it was found that online and printed media based weight loss seeking information was a strong predictor for the use of unhealthy weight reduction methods. In addition, the exposure to online fitness/health and proED pages strongly predicted the risk for developing eating disturbances. As men and older populations are generally underrepresented in studies of media, body image, and disordered eating, strength of the present study was the inclusion of both groups. Our results support previous findings, namely that

sociocultural theories of body dissatisfaction and disordered eating can be extended to an older age group as well. The results of the present study support the conclusion that there is a strong need in Hungary to develop media literacy and prevention programs. These programs should address the influence of media on body image and EDs through psychosocial processes, such as thin ideal/athletic internalization, the experience of pressures from media, the importance of media messages and body comparison. Furthermore, similar to Western countries and their body positive campaigns (laws banning underweight models from fashion shows, requirements to indicate which pictures in the magazine has been altered) Hungary should also create some laws to monitor the BMI of fashion models and the use of image alteration techniques that are implemented in appearance centred magazines. These laws and regulations could allow that men and women would be exposed to more realistic and healthy bodies in the media. This in turn would support a more diverse and more positive body image among the general population.

BIBLIOGRAPHY OF THE CANDIDATE'S PUBLICATIONS

PEER-REVIEWED ARTICLES

1. **Szabó K**., Czeglédi E., Babusa B., Szumska I., Túry F., Sándor I., and Bauer S. (2015) The European Initiative ProYouth for the Promotion of Mental Health and the Prevention of Eating Disorders* Screening Results in Hungary, European Eating Disorders Review, 23(2): 139–146. **IF: 2.461**

2. Czeglédi E., **Szabó K**., (2016) Hungarian experiences with the Beliefs About Attractiveness Scale – Revised. Ideggyógyászati Szemle (Clinical Neuroscience), 69(3-4): 98-105. **IF: 0.386**

3. **Szabó, K**., Túry, F. (2012) A magazinokban megjelenő írott és képi tartalmak evészavarokkal való lehetséges kapcsolata (Written and pictorial content in magazines and their potential relationship to eating disorders.) Lege Artis Medicinæ, 22(02): 139–145.

4. **Szabó, K**., Túry, F., Czeglédi E (2011) Evészavarok és a média — a magazinolvasási szokások és az evészavarok lehetséges kapcsolata. (Eating disorders and media — magazine reading habits and their potential relationship to eating disorders.) Mentálhigiéné és Pszichoszomatika, 12(4): 353-74.

BOOK CHAPTERS

1. Túry F., Czeglédi E., Papp I., Dukay-Szabó Sz., Babusa B., Güleç H., Mezei Á., **Szabó K**., Varga M., Szumska I. (2013) A táplálkozási magatartás zavarainak felmérése reprezentatív hazai minta alapján – különös tekintettel a háttértényezőkre (Assessing disordered eating behaviour in a representative national sample survey – particular focus on the background factors), In: Susánszky Éva, Szántó Zsuzsa (szerk.), Magyar lelkiállapot