RISK FACTORS FOR THE DEVELOPMENT OF EATING DISORDERS AMONG FASHION MODELS

Thesis booklet

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1. Introduction

Data on the prevalence of disturbed eating habits and body image concerns among fashion models is scarce. However, with the rise of unrealistic beauty standards (Reaves, 2011) and the increasing rates of eating disorders (EDs) (Keski-Rahkonen & Mustelin, 2016) it is more important than ever to investigate this specific group. Models are facing intense pressure to reach and to maintain the size requirements dictated by the fashion industry (Zancu & Enea, 2017). According to Rodgers et al. (2017), 62.4% of female fashion models have been asked to lose weight or to change their body shape and/or size, even though they were already underweight. Such criticism can highly influence body perception, self-esteem, and cause the feeling of shame which is correlated with disordered eating habits (Nechita et al., 2021). Models subjected to heightened pressure from modeling agents have reported more substantial weight loss, highlighting how systemic pressure within the fashion industry may contribute to perpetuating an excessively slim aesthetic (Rodgers et al., 2021). Presumably due to the intense appearance pressure, models are at significantly greater risk for developing EDs compared to non-models (Bogár et al., 2022). Peer-pressure, the abundantly displayed strong emphasis on thin body ideals, appearance related criticism are risk factors for

body image concerns and EDs (Tiggemann, 2011). In a study, 63.1% of models reported that they would receive more job offers providing that they were slimmer (Rodgers et al., 2017). The pressure to maintain a certain appearance in the modeling industry can lead to unhealthy weight controlling behaviors, such as skipping meals, dieting, or using weight loss supplements (Rodgers et al., 2021). It was found that the prevalence of EDs of clinical severity is not higher in models than in healthy controls, but the body mass index (BMI) of the models was significantly lower and partial ED syndromes were more frequent in models than in controls (Zancu & Enea, 2017). The fashion industry both maintains and shapes cultural patterns. It sets expectations, and these expectations often put health at risk.

2. Objectives

The main objectives of the present dissertation were as follows:

1. Assessing the level of perceived sociocultural pressure among models and non-models.
2. Comparing eating attitudes and behaviors among models and non-models.

3. The assessment of the frequency of anorexia nervosa, bulimia nervosa, and orthorexia nervosa in models and non-models.
4. The comparison of the difference between the actual and ideal BMI values of models and non-models.
5. Assessing body-related criticism fashion models experience from other industry members.
6. Comparing body dissatisfaction between models and non-models.
7. Assessing the frequency of sexual assault in models and non-models.

3. Methods

Quantitative and qualitative methods were combined to explore the frequency and underlying dynamics of EDs and body image concerns among fashion models.

For the quantitative analysis, female fashion models were selected by snowball sampling (n = 179). They were compared with an age-adjusted control group (n = 261). An online survey was created including sociodemographic, and anthropometric data, as well as modeling-related questions (only for the fashion model participants), the Eating Behavior Severity Scale (EBSS), the Eating Disorders Inventory (EDI), the Body

Attitude Test (BAT), the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3), the SCOFF, and the Eating Habits Questionnaire (EHQ). The survey was uploaded to the EvaSys platform of Semmelweis University (www.evasys.sote.hu).

For the qualitative analysis, a series of open-ended questions were distributed among international fashion models (n = 84) recruited by snowball sampling. Models from 17 countries participated. Anthropometric data was collected from the participants, including age, nationality, height, weight, and the number of years spent with modeling. The questions targeted models' eating, exercising, dieting habits, body image perception, and eating disorder symptoms. The average word count of the transcripts was 2473.9 (SD = 2791.6). Thematic content analysis was performed on the transcripts. A total of 31 codes were created to address disordered eating and body image concerns.

The data analysis was conducted using the SPSS 23 statistical software package. Descriptive statistics were carried out on the data, and averages and standard deviations were calculated. Independent sample t-test and Mann-Whitney U test were used for comparing group means. Chi-square tests were used to compare proportions. Cohen's d was used to determine the effect size for differences in averages and Cramer's V was used

to assess effect size for proportions. Multivariate analysis techniques, including linear and logistic regression were applied to control age and height differences between the two groups. The effect of the number of years spent with modeling was also assessed by linear regression. A structural equation model was built to investigate the effect of sociocultural attitudes towards appearance on body image. All effects were assessed using the *Z* test. The reliability of all used questionnaires was described with Cronbach's alpha.

In the qualitative analysis frequencies of each code were calculated and transformed into percentages. The analyses were conducted using relative frequencies. Non-parametric Mann-Whitney *U* tests were performed using the relative frequencies for each code for analysis of relationships between codes. Krippendorff's alphas were calculated using Hayes & Krippendorff's (2007) KALPHA algorithm.

4. Results

Quantitative results

The sample comprised 179 respondents in the model group and 261 respondents in the control group. In the fashion model group, the mean age was 25.9 years (*SD* = 4.70, range 16–37 years), mean height was 177.3 cm (*SD* = 3.58, range 170.0–

188.0 cm), and the mean BMI was 18.1 (*SD* = 1.68, range = 14.0–24.8). The non-model group's mean age was 25.0 years (*SD* = 4.97, range 16–37 years), mean height was significantly lower, 167.4 (*SD* = 6.59 cm, range 150.0–188.0 cm), and their mean BMI was significantly higher, 22.1 (*SD* = 4.23, $p < .001$, range 14.7–43.3). Both the study group and the control group were ethnically heterogenous.

When controlling to age and hight, the difference between the model and the non-model group in estimated marginal mean in the SATAQ-3 Internalization-general subscale, Internalization-athlete subscale, Information subscale, and the Pressure subscale were all significant, fashion models scored higher on all subscales of the SATAQ-3.

The results of the EBSS confirmed that fashion models engaged in maladaptive weight controlling behaviors more frequently than non-models did, significant differences were discovered in using appetite suppressants (12.3% vs. 5.0%, $p < .050$), vomiting (6.7% vs. 1.5%, $p < .050$), using laxatives (6.1% vs. 2.3%, $p < .001$) and using diuretics (2.8% vs. 0.8%, $p < .001$).

The pre-screening with SCOFF did not reveal significant differences between the two groups.

Subclinical anorexia nervosa (AN) symptoms showed a significantly higher frequency in the fashion model group (13.4%; CI [9.0, 19.5]) than in the non-model group (3.0% [1.1, 8.4], $p = .001$). Simulated clinical AN or bulimia nervosa (BN), and subclinical BN was not significantly higher in the fashion model group.

The difference in ON tendency between the model group and the non-model group was significant (35.4% CI [28.5, 42.9] in fashion models; 22.4% CI [14.8, 32.5] in non-models; $p = .026$). The mean actual BMI of fashion models was 18.1 ($SD = 1.68$, range = 14.0–24.8). The mean actual BMI of non-models was significantly higher, 22.1 ($SD = 4.23$, $p < .001$, range 14.7–43.3). Regarding BMI classification, 44.7% of the models reported BMI of between 18.5 and 17.0, and a further 21.2% reported it as under 17.0, which is severely underweight (WHO, 2000). The ideal BMI of fashion models was 17.8 ($SD = 1.40$, range 14.0–24.8), while the ideal BMI of the non-models was 20.4 ($SD = 2.32$, range 14.0–30.7). Fashion models' BMI when they secured the most modeling jobs was 17.0 ($SD = 1.29$, range 14.5–22.9). As the differences between models and non-models in the actual BMI compared to the ideal BMI might be the result of the difference in BMI between the two groups, a regression model was used for the effect of being model on the difference in ideal and actual BMI controlling for current BMI (there was

a significant difference in actual BMI between the model and non-model groups, and there could be an inverse relationship between current and ideal BMI). The results show that for the same actual BMI, the ideal BMI is 0.81 lower in the model group compared to the non-models (b = -0.810, CI [-1.079, -0.530], $p < .001$).

Measured on the BAT, fashion models scored significantly higher on the General body dissatisfaction subscale, the Negative appreciation of body size subscale, and the Lack of familiarity with one's body subscale.

The results of the linear regression did not reveal any significant effect of the number of years as a model or models' age on any of the subscales of the EHQ or the SATAQ-3. The years spent with modeling had a significant positive effect on the EDI Bulimia subscale, but the effect was minimal. The model's age had a significant negative effect on the BAT General body dissatisfaction subscale.

Being a model had a strong direct distorting effect on body image in general (on the EDI Body dissatisfaction and the BAT General body dissatisfaction subscales), and a weak but significant distorting effect on negative appreciation of body size. Being a model strongly moderated the effect of sociocultural attitudes. The effect of either type of internalization of sociocultural expectations had a less

distorting effect on body image in models compared to non-models. These effects resulted in a negligible overall effect of being a model on body dissatisfaction, and a distorting effect on negative appreciation of body size.

Sexual assault was occurrent in 76.5% of the models and 55.7% of the non-models.

Qualitative results

Testimonies of 84 models were analyzed. The mean age of the sample was 23.2 years (*SD* = 4.4, range 16–34 years), the mean height was 177.8 cm (*SD* = 3.64, range 171.0–186.0 cm), the mean weight was 52.9 kg (*SD* = 4.21, range 45–62 kg), and the mean BMI was 16.9 (*SD* = 1.60, range 14–23.7). According to the WHO (2000) criteria, 36.4% of the participants were mildly underweight ($17.0 \leq \text{BMI} \leq 18.49$), and 52.3% were moderately or severely underweight (BMI < 17.0). The participants spent 6.56 years (*SD* = 3.67, range 1–15 years) in the fashion industry on average. The sample was internationally heterogeneous.

Thematic content analysis confirmed that body and eating related statements were more negative than positive in models' narratives. Controlling food intake occurred in 78.6%, extreme calorie restriction in 40.5%, self-induced vomiting in 14.3% of the narratives. Testimonies contained professional criticism in 83.3% of the cases while 44.0% included body appreciation

from other industry members. Body image disorder-like symptoms were expressed by 63.1%, and EDs by 36.9% of the models. Models who received bodily criticism talked significantly more about body image disorder symptoms.

5. Conclusions

This dissertation reveals that female fashion models, internalize significantly more media messages about the thin beauty ideal, and they identify more strongly with unrealistically slim beauty standards. Additionally, models feel more compelled by media to pursue culturally defined beauty ideals and engage in potentially dangerous behaviors, such as dieting and abusing laxatives, to alter their appearance. It was also confirmed that negative eating attitudes and maladaptive eating behaviors are more prevalent among female fashion models than among non-models which might be associated with the professional and sociocultural pressure to conform to the industry's measurement standards. Extreme calorie restriction, excessive exercising, use of laxatives, or self-induced vomiting are frequently employed health damaging behaviors among fashion models. Fashion models are at an increased risk for developing partial ED symptoms, albeit without a higher propensity for clinical severity EDs compared to non-models. Fashion models

are most at risk for subclinical AN and orthorexic tendencies. Both general body dissatisfaction, and negative perception of body size are more frequent among models than in non-models. Eight out of ten female fashion models are criticized based on their appearance. Nearly five times more female fashion models receive body-related criticism rather than appreciation from industry members compared to those who receive more positive than negative remarks about their bodies. Research indicates that body criticism is associated with increased engagement in weight loss efforts among models (Rodgers et al., 2017). Models have a higher average ideal BMI than what is required by the industry to be successful. Fashion models are less familiar with their own bodies compared to non-models, which could be due to psychological disassociation as a coping mechanism for the objectification and depersonalization that models experience. Beyond eating and body image disturbances, modeling involves challenges including psychological abuse (humiliation, objectification, exploitation, etc.) by agents, a practice that must be discontinued. Additionally, the frequency of sexual violence among fashion models is alarmingly high, and protection policies against such abusive maltreatments are still in their infancy. The findings of this research indicate a significant risk of subclinical AN, orthorexic tendencies and negative attitudes toward body

image, which is more likely to be related to the environmental pressure fashion models face rather than intrinsic factors. Such subclinical symptoms can later lead to the manifestation of clinically severe EDs in biologically or psychologically more vulnerable individuals. Moreover, the pervasive influence of fashion models as cultural icons means that their struggles with disordered eating can perpetuate unhealthy body image standards and behaviors among the broader population, especially young and impressionable individuals. This underscores the urgent need for preventive measures and supportive interventions within the fashion industry, including healthy body standards, mental health resources, and body diversity promotion. Modeling agencies should expand their professional teams to include personal trainers, dietitians, and psychologists. This multidisciplinary approach helps models meet industry requirements while safeguarding their health. There is an urgent need to revisit unrealistic body measurement standards and eliminate the industry's coercive practices promoting harmful behaviors. This study fills a significant gap in the literature, providing insights into the pressures faced by models and contributing to effective strategies for addressing these issues in high-pressure professions.

6. Bibliography of the candidate's publications

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