Connection Between Socioeconomic Status and Behavioral Well-being: A Closer Look at Eating and Sleep Disorders

Xinru Li[1,a,*], Lijing Ouyang[2,b], Sizhe Zhang[3,c], Li Li[4,d], and Zitong Huang[5,e]

[1]*College of Science, Northeastern University, Boston, 02115, US*
[2]*Division of Psychology and Language Sciences, University College London, London, WC1E 6BT, United Kingdom*
[3]*College of Arts and Sciences, Boston University, Boston, 02215, USA*
[4]*College of Liberal Arts, Auburn University, Auburn, 36830, USA*
[5]*Appleby College, Oakville, Ontario, L6K 3P1, Canada*
a. li.xinru1@northeastern.edu, b. zcjtlou@ucl.ac.uk, c. zhsizhe@bu.edu, d. lzl0089@auburn.edu, e. zhuangwz2015@gmail.com
*corresponding author

Abstract: This paper aims to investigate whether there is a correlation between individuals' socioeconomic status and the prevalence and severity of eating and sleeping disorders. The current study attempts to explain this link from an evolutionary psychology perspective. This study discusses past literature that showed the prevalence and severity of eating and sleeping disorders positively or negatively correlating with factors like mating, social impacts and working, then predicts a positive correlation between a less commonly investigated factor, socioeconomic status, and the prevalence and severity of eating and sleeping disorders. The research proposal suggests that in a correlational study, 1000 participants will complete a questionnaire as a measurement of their socioeconomic status and the prevalence and severity of eating and/or sleeping disorders. A longitudinal study will follow up the data for 12 months. A multiple regression will be conducted. If results are found significant, implications of our findings could be applied both socially and clinically. If a non-significant result is found, the direction of future studies is suggested, including using multiple research methods for further investigation and attempting to establish a causal relationship between the chosen variables.

Keywords: Evolutionary Psychology, Socioeconomic status, Eating Disorder, Sleeping disorder, correlational study

1. Introduction

1.1. Backgrounds

Evolutionary psychology is a branch of general psychology that offers a new perspective and approach to human behaviors and actions. The study of evolutionary psychology revolves around two theories: Darwin's theory of evolution and his theory of natural selection. Differing from many cognitive psychologists, evolutionary psychologists propose that human decision-making processes and mechanisms are the products of natural selection, adaptations that have developed throughout history, shaping what is commonly referred to as "human nature." In summary, evolutionary

psychology traces the origins and explains human behavior as an integral part of human instinct and as a result of adaptations that evolved in previous generations. In addition to adaptations, there is another outcome of evolution known as byproducts. Adaptations represent solutions developed to accommodate past environments and address adaptive problems. In contrast, byproducts are products that emerged alongside adaptations but serve no specific purpose and have no significant impact on adaptive problem-solving.

Eating disorders (ED) encompass a group of behavioral conditions characterized by unhealthy or unnatural eating behaviors that result in persistent and severe damage to an individual's mental and physical health [1]. Similarly, sleeping disorders (SD) are a group of disordered behavioral conditions that encompass frequent or persistent disruptions during sleep, excessive sleeping, significantly reduced sleep duration, and unhealthy sleep habits that impact an individual's psychological and physical health [1].

This research proposal aims to enhance our understanding of the causes and influences of eating and sleeping disorders and their relationship to socioeconomic status (SES). It is essential to explore the connection between EDs and SDs and people's SES from an evolutionary perspective, as the findings from this proposal can assist professionals in preventing the development of early symptoms and effectively treating and engaging with patients. By targeting the demographic with a higher prevalence of potential cases, interventions, and support, guided by evolutionary explanations, can be introduced to these groups to prevent these disorders and gain deeper insights into their mindsets and underlying reasons. In this article, the researchers will focus on three types of eating disorders: Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder. The two types of sleeping disorders under investigation are insomnia and hypersomnia.

According to the APA DSM-5 [1], Anorexia Nervosa (AN) involves restricting energy intake due to an intense fear of gaining weight and a denial of the problem of the current low body weight. Bulimia Nervosa (BN) is characterized by an inability to control overeating a significantly larger amount of food than most people in a short period of time, along with inappropriate compensatory behaviors to prevent weight gain (e.g., self-induced vomiting). Binge Eating Disorder (BED) is marked by an inability to control overeating a significantly larger amount of food than most people in a short period of time, accompanied by feelings of embarrassment but without inappropriate compensatory behaviors.

Insomnia is defined as a condition in which individuals experience difficulty sleeping for longer than three months, including difficulty falling asleep, waking up during the night, or waking up early in the morning and being unable to return to sleep. These individuals also report significant dissatisfaction with the quality and quantity of their sleep [1]. On the other hand, hypersomnia is a condition in which individuals report long-term, excessive sleep, such as falling asleep during daily activities, sleeping for more than nine hours per day, or experiencing difficulty staying awake after abrupt awakening, which significantly affects their normal functioning (mentally, physically, and socially) [1].

1.2. Literature review

Of the factors affecting people's eating and sleeping behaviors, three are most discussed: mating and social impact on eating behaviors; and acquiring resources affecting sleeping behaviors. The following section will review past research in each of these three factors and provide the motivated hypothesis of the current study.

1.2.1. Mating and Individual's Disordered Eating Behavior

According to Miller & Perlman [2], an intimate relationship is a special kind of interpersonal relationship that involves physical and emotional intimacy. There is plenty of research that has observed and found connections between body anxiety, eating disorders, and intimate (and romantic) relationships [3]. For example, Sheet & Ajmere [4] have found that comments and feedback given by partners could strongly affect someone's self-esteem and body confidence. Therefore, it is reasonable to suggest that eating disorders might be a byproduct of mating or the desire to be more competitive in the mating market.

Furthermore, research evidence showed that those who are constantly feeling self-conscious or unapproved by their partner during intimate activities tend to develop more bulimic symptoms [5]; even though the participants were not diagnosed with bulimia nervosa, the results provided supporting evidence for the link between intimate relationship and disordered eating behaviors, which motivates further researching on this topic. Correspondingly, females who perceived less support (either verbally being unapproved or physically not receiving enough intimate contact) from their lover exhibited more dieting symptomatology [6]; similarly, Evans and Wertheim [7] also found that females with eating disorders tend to struggle in intimate and romantic relationships as they report feeling less close and comfortable with their other half. However, the experiment results of Evans and Wertheim [7] could only represent this phenomenon in the female population because of the large sample of 360 all-female participants. Therefore, more studies should be carried out to investigate if this extrapolates to males. Despite this, multiple research papers stand as strong supporting evidence to show that eating disorder is related to, or could be induced by, anxieties in intimate relationships or worries about being less competitive in the mating market.

It is important to note that so far, most of the studies have only studied the relationship between eating disorders and anxiety in romantic relationships, however, usually leaving the factor of socioeconomic status as a controlled factor. We therefore identify this as a gap in past literature and intend to explore whether there is a connection between SES and the prevalence and severity of eating disorders.

1.2.2. Social Norm and Social Impact on Individual's Disordered Eating Behavior

Body dissatisfaction acts as a predictor of adolescents' disordered eating behaviors [8]. Individuals may experience dissatisfaction with their bodies primarily due to interpersonal reasons such as peer pressure. From an evolutionary psychology perspective, physical appearance becomes a crucial factor in an individual's mating needs, leading them to conform to social expectations to maintain competitiveness. Gender differences also contribute to varying social expectations. Among teenage girls, female friends tend to exert pressure related to weight loss [9]. However, male friends are more likely for teenage boys to encourage muscle-building behaviors [10]. Xu et al. [11] find the current studies on sociocultural influences regarding body change behaviors lacking in non-western populations. Consequently, they conducted a study focusing on Chinese adolescents to address this research gap and to understand sociocultural influences on body image concerns and behaviors in different cultural contexts. Their study supports that females were more likely to report greater body dissatisfaction than males. Furthermore, from the perspective of females, body dissatisfaction was a stronger predictor of weight loss behaviors than Body Mass Index (BMI), a measurement based on a person's height and weight.

Social messages about body image are a significant factor influencing individuals, leading to body dissatisfaction. The dissatisfaction may eventually progress to dieting and, in extreme cases, develop into disordered eating behaviors, specifically Anorexia Nervosa. While many studies have been conducted to support that sociocultural pressure would significantly affect girls' eating behaviors,

most of the studies were solely studying on girls. The gap in understanding the sociocultural influence on boys leads Cafri et al. [12] to conduct studies on boys as well, and they found that boys may also face the socio-pressure of achieving a body type that has minimal body fat in modern society. Ricciardelli and McCabe [13] carried out a study in the early 2000s and discovered that almost one-third of adolescent boys aspired to have a thinner body shape. Shomaker and Furman [14] conducted studies on the interpersonal influences on late adolescents' disordered eating behavior, examining mother pressure, romantic pressure, friend pressure, and friend criticism. They found peer pressure to be highly associated with disordered eating. Girls would experience greater pressure from mothers and peers, and boys would experience greater criticism about their appearance. Despite the different types of social pressure, gender did not play a significant role in interpersonal pressure and disordered eating outcomes. In other words, both males and females may get disordered eating behaviors from interpersonal pressure.

In addition, traditional media messages are prominent in conveying sociocultural messages about appearance and body image concerns besides interpersonal influences [15]. For instance, Television shows and magazines often portray models with slim bodies and lean muscles. Katzmarzyk and Davis [16] used BMI and waist-hip ratio (waist circumference/hip circumference) to examine the changes in body weight and shape of Playboy centerfolds from 1978 to 1998. They concluded that 70% of the women were underweight, and 77.5% were lower than 85% of their ideal body weight. Nowadays, social media is becoming a prevalent part of human society. Individuals can experience more interpersonal interaction and feel more connected to society through social media. However, social media can also serve as a platform to promote weight stigma and body shaming messages [17]. Such body image stereotypes can significantly impact individuals. For instance, a significant association has been found between social media use and eating concerns among young adults, with more frequent and higher volumes of social media exposure being linked to an increase in disordered eating behaviors [18].

1.2.3. Work and Individual's Disordered Sleeping Behavior

From an evolutionary point of view, human beings develop adaptation in the form of acquiring resources from nature in order to increase their reproduction. Consequently, human ancestors are trying to acquire more resources to have the conditions to increase reproduction capacity from prehistoric to modern times. This tendency to get resources has become instinctive in human behaviors. Primitive humans relied more on risky and unstable hunting and gathering to establish a basis for survival and reproduction. Unlike primitive societies, people in modern societies no longer live primarily through hunting or gathering, and money has become the most significant resource for modern people. To have more stable and secure access to money, a method has been invented: work. This can be seen as a by-product of the adaptation and has become the main way of acquiring resources for every modern person. However, with the advent of the Industrial Revolution (the 1760s – 1840s), people's work patterns began to become complex.

In the 18th century, the Industrial Revolution brought factories, which greatly accelerated the rate at which humans produced resources. More resources demand more work. As Karl Marx [19] argued in Capital; critique of Political Economy, capitalist production is driven by its inherent nature to appropriate labor twenty-four hours a day; but because it is physically impossible to constantly utilize the same person's labor, day or night, capital must overcome this physical obstacle. Consequently, shift work was invented. Shift work represented a practice of dividing twenty-four hours into different shifts to guarantee that all twenty-four hours are utilized to produce value. This means that under this system, some people have circadian rhythms that are different from natural rhythms. In other words, the by-product of evolution becomes the sacrifice of sleep that matches natural circadian. Does this difference have adverse effects on the human physical condition?

In order to go about exploring the relationship between shift work and physical condition, there are many studies that have been implemented. Together, these studies emphasize the negative impact of shift work on sleep. When the abnormalities of sleep caused by shift work reach a certain threshold, sleep disorders (sleep-wake disorders) appear. According to the DSM-5 [1], sleep-wake disorders include diverse specific disorder groups. People who have these conditions usually show sleep-related concerns related to being unhappy about the quality, timing, and quantity of their sleep. Feeling distressed and experiencing difficulties during the day as a consequence are common characteristics among all of these sleep-related disorders [1]. Specific research can help explain how sleep disorders relate to shift work more concretely.

Firstly, the direct negative effects of shift work systems on sleep are worth introducing. Many shift workers would have excessive sleepiness, insomnia, or both [20]. Going deeper into prevalence, Li and Fan [21] conducted a study to measure the sleep of factory workers in shift work. They found 576 participants in ten Chinese factories to complete different sleep scales and questionnaires. These workers work mainly in three shifts. Through the statistical analysis, their sleep turned out to be amazingly impaired. 31.3% of the participants were found to have sleep disorders [21]. Furthermore, among the 576 participants, there were 241 day workers who were paid once a day. Because of the job nature of day workers, they are not exposed to shift work every day, but still, 24.9% met the criteria for disturbed sleep. These data are certainly a reminder that the prevalence of sleep disorders is high under shift work. Even if some people don't need to work shifts every day, they still have a high risk of developing disturbed sleep patterns.

Taking all the factors into consideration, the tendency to acquire more resources, as an adaptation of human beings, might put a strain on modern human sleep as it induces the by-product, the sacrifice of healthy sleep. Modern shift work systems can negatively affect the quality and duration of sleep. To be more specific, drowsiness, insomnia, and other abnormal sleep patterns would occur. The potential risk of sleep disorders is then raised.

1.3. Hypothesis and Approach

This article will be researching and designing an experimental research proposal surrounding two hypotheses: firstly, the populations with a higher socioeconomic status will have a higher prevalence and severity of contracting these eating disorders, and vice versa (those with a lower socioeconomic status would have a lower prevalence and severity of EDs); and secondly, the populations with a lower socioeconomic status will have a higher prevalence and severity of contracting these sleeping disorders, and vice versa. Socioeconomic status is observed and identified in three levels, low, medium and high; it separates populations based on their income level, social status, education level and their access to healthcare. The current study is focusing on observing SES because in multiple previous studies, many researchers controlled participants' SES in the experiments to avoid undesired effects, therefore the question of whether there is a correlation between SES and the prevalence of Eating Disorder and Sleeping Disorder is raised; this study attempts to investigate this undiscovered link.

This direction of the hypothesis is primarily based on the evidence from the literature review. The findings about Sleeping Disorders indicate that people with lower SES would have a higher prevalence and severity of Sleeping Disorders, as having to shift work is more common in those with lower SES; however, evidence on Eating Disorders is mainly compatible with each other and suggesting that people with high SES might tend to have higher prevalence and severity of ED. This choice of direction is based on the idea that these high socioeconomic status groups have satisfied their fundamental survival needs. These groups are no longer exposed to survival problems and natural threats, in this case, needs for water, food, resources, and shelter; they have less worry about surviving (basic eating needs) because their survival is "secured". Instead, these high SES groups

would heavily focus on more luxurious satisfaction, such as higher standard mating needs (e.g. the partner needs to provide much more emotional support instead of basic mating for reproduction) and entertainment needs. When an individual prioritizes their position in the mating market over having healthy eating behaviors, they are likely to pursue higher body standards and be stricter on their diet, which if extreme, might lead to irregular or other unhealthy eating behaviors, then gradually lead them to developing eating disorders. On the other hand, low SES groups still face the problems of survival and supplying for their basic needs which occupy their daily lives, leaving no time left to worry about their competitiveness in the mating market or satisfying their entertainment needs.

The research process will be using the Engel's coefficient (calculated and estimated through the data gathered from the questionnaire, which will be further explained in the later part of the paper), a proportion that represents the amount of income that was spent on buying food or eating out of the total expenses, which will be ruling out the differences of currency in different countries, thus providing a more accurate result.

2. Research Proposal

2.1. Experiment 1: correlation

2.1.1. Participants

A total of 1000 participants will be recruited by random sampling, aged between 18-60. Participants will report their gender, age, sexual orientation, and ethnicity before data collection. Informed consent will be collected from all participants before participating in the experiment, and approval from the Ethics Committee will be gained.

2.1.2. Design

This experiment will conduct a survey to investigate the correlation between participants' SES and the prevalence and severity of ED and SD. The predictor variable is the participants' socioeconomic status; the criterion variable is the prevalence and severity of each disorder. Data for the prevalence and the severity will be run in two separate regression models.

2.1.3. Materials

All data collection will be conducted online, using a web-based platform Qualtrics. All measurements will be carried out by asking questions on a survey. The concept of socioeconomic status will be operationalized as the amount of money participants are spending on food and meals out of their total income (their calculated Engel's coefficient). The concept of the prevalence and severity of eating and sleeping disorders will be operationalized as the total score on the Likert scale of the questions asking for participants' eating and sleeping behaviors. Likert scales will be displayed in the form of 1, meaning completely disagree with the statement (indicating lower severity), and five completely agree with the statement (indicating higher severity).

The questionnaire will be divided into three sections. The first section will inquire about the participants' personal background, including aspects such as gender, age, ethnicity, sexual orientation, educational level, etc. Additionally, the questionnaire will ask about participants' average monthly personal income and monthly personal expenses purely on food so that we can estimate participants' Engels' coefficient for data analysis purposes. The order of the questions will be randomized to minimize potential bias.

The second section will include questions reflecting potential disordered eating behaviors. There would be questions regarding participants' current Body Mass Index (BMI) level and Likert scale

questions to predict the severity of dieting behaviors (e.g., "I maintain a regular eating schedule"). We will also include questions assessing the social impact on dieting behaviors, such as "Seeing my friends dieting makes me want to diet too," with Likert scale options and we may use these data for future study purposes.

The third and final section of the survey will target potential disordered sleeping behaviors. Questions may ask about average daily sleeping time, the use of sleep supplements, and potential indicators of sleep disorders (e.g., "I frequently wake up in the middle of the night" or "I struggle to fall asleep").

2.1.4. Survey

- **Section I**
  - Gender
  - Age
  - Ethnicity
  - Sexual orientation
  - Educational level
  - Marital Status
  - Average personal income per month (<3000 CNY, 3000-8000 CNY, 8000-15000 CNY, 15000-30000 CNY, >30000 CNY)
  - Average personal expense per month (<2000 CNY, 2000-6500 CNY, 6500-12500 CNY, 12500-26000 CNY, >26000 CNY)
  - Average personal expense per month on food and meals (<1000 CNY, 1000-1500 CNY, 1500-2500 CNY, 2500-4000 CNY, 4000-6000 CNY, 6000-9000 CNY, >9000 CNY)
  - Employment Status
  - Number of siblings
  - Average time spending on social media per day(<1hr, 1-3hr, 3-5hr,<5hr)
- **Section II**
  - Social influence (e.g. of statement: seeing your friends being on a diet makes me want to go on a diet…)
  - Eating disorder features (e.g. of statement: I have three meals a day; There is an at least 4 hours interval between each meal I take…)
  - Current BMI level (<18.5, 18.5-25,25-30,<30)
- **Section III**
  - Sleeping disorder features (e.g. of statement: I frequently wake up in the middle of the night; I frequently talk when I sleep; I often have dreams…)
  - Average sleeping time per day
  - Sleep supplement use (e.g. melatonin)

2.1.5. Procedure

A survey will be conducted via the online platform, Qualtrics. All participants will be provided with an informed consent form informing them of the subject of this survey and their rights while taking the survey before starting. Participants will then receive a web link to the questionnaire and will be asked to complete it using their own devices after giving their consent to the study. The questionnaire is designed to be completed in approximately 15 minutes. Participants will receive a debriefing after finishing the study. Data of all participants will be gathered within a month and then data analysis will be conducted.

2.1.6. Data analysis

The current study proposes to utilize multiple regression to analyze our data on SPSS. This method is chosen as there are many factors that could affect sleeping and eating behaviors and could also correlate with ED and SD (e.g. lifestyle, social media use), but this study attempts to mainly observe the effect of SES on the prevalence and severity of these disorders.

2.2. Longitudinal study: An extended exploration

The current study hypothesized that participants' behavioral health could be impacted to varying levels based on their different SES when exposed to the same duration in society. Therefore, a longitudinal study will be carried out as a further exploration following the first experiment.

2.2.1. Participants

From the 1,000 participants recruited for the initial experiment, the current experiment will inquire if they are willing to extend their participation in this study after a duration of 12 months. Those who consent to further participation will be included in the subsequent experiment.

2.2.2. Survey

The same questionnaire from the experiment would be handed out to the participants in order to make more accurate comparisons between two sets of data.

2.2.3. Procedure

Participants will be recruited again after a 12-month duration to the first experiment. The procedure from experiment I will be repeated. The participants will be provided with informed consent again and will answer the same questionnaire they answered 12 months ago. Participants will once again receive a debriefing after finishing the questionnaire. Data of all participants will be gathered within a month and data analysis will be conducted through SPSS.

2.2.4. Data analysis

Data will be analyzed using the same method as in experiment I (multiple regression). Then, the current study will investigate whether the change in participants' SES can predict the change of the severity of their ED and/or SD after a 12-month duration.

3. Conclusion

The purpose of this study is to determine whether socioeconomic status (SES) has a positive correlation with the prevalence and severity of eating and sleep disorders. If the study hypothesis is supported by the study, the implications of the findings can be applied both socially and clinically.

From a social perspective, awareness among those with a higher risk of exposure to behavioral health issues could be raised. Clinically, therapists could benefit from a better understanding of how an individual's SES might influence their behavioral health and allow them to design more effective treatment plans based on clients' backgrounds.

In future research, studies could examine whether culture acts as a confounding factor in the hypothesis of the current study. This would involve testing the impact of SES on Western and non-Western populations to see if the same level of SES yields different results. Moreover, while the present study is only examining the potential correlation between SES and the prevalence and severity of behavioral health problems, further investigation could be conducted to determine whether a causal

relationship exists.

However, if this study fails to support the hypothesis—that is, if no correlation exists between SES and the prevalence and severity of eating and sleep disorders—there could be several potential explanations. SES is a complex concept influenced by numerous factors, and the current study may have focused on a single element with no apparent correlation. In such cases, repeating the research by studying a different variable could be considered as an improvement.

Another potential limitation could be the exclusive reliance on questionnaires used in this study for data collection. This could be problematic as there are several potential response biases when conducting a questionnaire study, such as demand characteristics, social desirability bias, extreme or neutral responses, and acquiescence or dissent bias. To overcome these limitations, future studies could implement other research methods as complementary evidence, such as case studies.

Acknowledgements

References

[1] American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

[2] Miller, R., Perlman, D., & Brehm, S. S. (2007). Intimate relationships. Handbook of Intercultural Communication, 341

[3] Arcelus, J., Yates, A., & Whiteley, R. (2012). Romantic relationships, clinical and sub-clinical eating disorders: A review of the literature. Sexual and Relationship Therapy, 27(2), 147–161. https://doi.org/10.1080/14681994.2012.696095

[4] Sheets, V., & Ajmere, K. (2005). Are romantic partners a source of college students' weight concern? Eating Behaviors : An International Journal, 6(1), 1–9. https://doi.org/10.1016/j.eatbeh.2004.08.008

[5] Schembri, C., & Evans, L. (2008). Adverse relationship processes: The attempts of women with Bulimia Nervosa symptoms to fit the perceived ideal of intimate partners. European Eating Disorders Review, 16(1), 59–66. https://doi.org/10.1002/erv.797

[6] Juda, M. N., Campbell, L., & Crawford, C. B. (2004). Dieting symptomatology in women and perceptions of social support: An evolutionary approach. Evolution and Human Behavior, 25(3), 200–208. https://doi.org/10.1016/j.evolhumbehav.2004.02.001

[7] Evans, L., & Wertheim, E. H. (1998). Intimacy patterns and relationship satisfaction of women with eating problems and the mediating effects of depression, trait anxiety and social anxiety. Journal of Psychosomatic Research, 44(3), 355–365. https://doi.org/10.1016/S0022-3999(97)00260-2

[8] Batista, M. (2018). Predictors of eating disorder risk in anorexia nervosa adolescents. Acta Clinica Croatica. https://doi.org/10.20471/acc.2018.57.03.01

[9] Griffiths, J. A., & McCabe, M. P. (2000). The influence of significant others on disordered eating and body dissatisfaction among early adolescent girls. European Eating Disorders Review, 8(4), 301–314.

[10] Jones, D. C., & Crawford, J. K. (2005). Adolescent boys and body image: Weight and muscularity concerns as dual pathways to body dissatisfaction. Journal of Youth and Adolescence, 34(6), 629–636. https://doi.org/10.1007/s10964-005-8951-3

[11] Xu, X., Mellor, D., Kiehne, M., Ricciardelli, L. A., McCabe, M. P., & Xu, Y. (2010). Body dissatisfaction, engagement in body change behaviors and sociocultural influences on body image among Chinese adolescents. Body Image, 7(2), 156–164. https://doi.org/10.1016/j.bodyim.2009.11.003

[12] Cafri, G., Blevins, N., & Thompson, J. K. (2006b). The drive for muscle leanness: A complex case with features of Muscle Dysmorphia and eating disorder not otherwise specified. Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity, 11(4). https://doi.org/10.1007/bf03327575

[13] Ricciardelli, L. A., & McCabe, M. P. (2001). Children's body image concerns and eating disturbance. Clinical Psychology Review, 21(3), 325–344. https://doi.org/10.1016/s0272-7358(99)00051-3

[14] Shomaker, L. B., & Furman, W. (2009). Interpersonal influences on Late adolescent girls' and boys' disordered eating. Eating Behaviors, 10(2), 97–106. https://doi.org/10.1016/j.eatbeh.2009.02.003

[15] Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. Journal of Social and Clinical Psychology, 23(1), 7–22. https://doi.org/10.1521/jscp.23.1.7.26988

[16] Katzmarzyk, P., & Davis, C. (2001). Thinness and body shape of Playboy Centerfolds from 1978 to 1998. International Journal of Obesity, 25(4), 590–592. https://doi.org/10.1038/sj.ijo.0801571

[17] Pearl, R. L. (2018). Weight bias and stigma: Public health implications and structural solutions. Social Issues and Policy Review, 12(1), 146–182. https://doi.org/10.1111/sipr.12043

[18] Sidani, J. E., Shensa, A., Hoffman, B., Hanmer, J., & Primack, B. A. (2016). The association between social media use and eating concerns among us young adults. Journal of the Academy of Nutrition and Dietetics, 116(9), 1465–1472. https://doi.org/10.1016/j.jand.2016.03.021

[19] Marx, K., Engels, F. (1907). Capital; critique of Political Economy. C.H. Kerr & Co.

[20] Wickwire, Geiger-Brown, J., Scharf, S. M., & Drake, C. L. (2017). Shift Work and Shift Work Sleep Disorder: Clinical and Organizational Perspectives. Chest, 151(5), 1156–1172. https://doi.org/10.1016/j.chest.2016.12.007

[21] Li, & Fan, F. (2018). 0168 Shift Work Sleep Disorder In Industrial Workers: A Survey. Sleep (New York, N.Y.), 41(suppl_1), A65–A66. https://doi.org/10.1093/sleep/zsy061.167