Available online: https://e-journal.unair.ac.id/jps

Original Research

Relationship of Physical Change and Social Culture with the Risk of Eating Disorder in Students from One of Surabaya High School

Aisyah Alhaura Gibrata[1], Royke Tony Kalalo[2], Nining Febriyana[2], Roedi Irawan[3]

[1]Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia
[2]Department of Psychiatry, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo General Academic Hospital, Surabaya, Indonesia
[3]Department of Pediatrics, Faculty of Medicine, Universitas Airlangga - Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

Received: December 2, 2023
Accepted : March 14, 2024
Published Online : November 1, 2024

Correspondence Author:
Email: aisyah.alhaura.gibrata-2020@fk.unair.ac.id

Abstracts

Introduction: Adolescents aged 10 to 19 experience significant growth in various areas. Around 14% of them struggle with mental health, and eating disorders have the highest mortality rate. According to research, screen-related disordered eating affects about 1 in 8 high school students, and sociocultural pressure is positively associated with bulimia-related behaviors. Limited data on physical changes and sociocultural influences on eating disorders exist in Surabaya, Indonesia. The study aims to examine the potential correlation between physical alterations and sociocultural elements and the likelihood of eating disorders in one of Surabaya's high schools. **Methods:** This cross-sectional observational analytic study collects primary data using two questionnaire instruments: EAT-26e collected samples from 60 students in SMAN2 Surabaya and SATAQ-4 using random stratified sampling. We used random stratified sampling to collect samples from 60 students in one of Surabaya's high schools. We used SPSS version 25 to examine the data using the Spearman's Rho Correlation Coefficient. **Results:** Physical changes show no significant correlation; in contrast, sociocultural pressure results show a significant correlation with the risk of eating disorders. Peer pressure, family pressure, and media pressure do not significantly influence the subscales of social culture under measurement. **Conclusion:** In one of Surabaya's high schools, there is a significant positive correlation between sociocultural factors and the risk of eating disorders; however, there is no significant correlation between physical changes and the risk of eating disorders.

Keywords: Physical Changes, Social Culture, Eating Disorder, Youth Wellbeing Index, Mental Health

Cite this as: Gibrata. A. A., Kalalo. R. T., et al. "Relationship of Physical Change and Social Culture with the Risk of Eating Disorder in Students from One of Surabaya High School". Jurnal Psikiatri Surabaya, vol. 13, no. 2, pp.146-153, 2024. doi: 10.20473/jps.v13i2.50503

INTRODUCTION

Adolescence is a phase between childhood and adulthood, varying from the age of 10 to 19. During this phase, there is exponential growth in physique, hormones, cognitive, and psychosocial functioning. Statistically, 1 in every 7 (14%) adolescents experiences mental health conditions, such as emotional disorders, behavioral disorders, eating disorders, psychosis, and risk-taking behavior [1]. Annually, 3.3 million people experience a degrading quality of life due to eating disorders [2]. Eating disorders also have the highest mortality rate among other mental health disorders [1].

Today, many adolescents prioritize their physical appearance. Many adolescents today strive to maintain the ideal body image they have subconsciously internalized, which can have detrimental effects on their mental and physical health. A study conducted in 25 countries resulted in 13% screen-based disordered eating; it is estimated that around 1 out of every 8 high school students is experiencing this disorder and needs public healthcare attention [3].

Puberty, a period of rapid physical development and sexual maturation, marks the onset of adolescence. There are changes in body proportions and secondary sexual characteristics; girls experience breasts, body hair, and changes in voice pitch, while boys also experience facial hair growth and an increase in muscle mass [4]. These changes can impact body image and contribute to feelings of body dissatisfaction.

A Chinese study found a significant direct relationship between peer influence and negative body image. The study mentions that social orientation enables students to establish positive interpersonal relationships and maintain high standings. They care more about their appearance and peer comments because their approval matters [5].

Researchers report that encouragement, comments about weight control, and diet, rather than teasing from parents, most likely affect body dissatisfaction [6]. Another study also found that teasing, encouragement for weight loss, weight gain, body bulking, and model behavior by parents also impact body dissatisfaction in adolescents [7].

According to a study, social media usage and body dissatisfaction have a positive correlation [8]. This ideal internalization of thinness and muscularity leads to 60% of adolescent girls and 30% of adolescent boys feeling dissatisfied with their bodies, as they fail to meet their own unconsciously assimilated standards of body image [9].

Statistics show that 2.6% of adolescents exhibit risks and symptoms of eating disorders [10]. In Surabaya, Indonesia, there is a dearth of data on the potential impact of physical changes and sociocultural factors on the risk of eating disorders. This research will try to find the relationship between physical changes and sociocultural factors and the risk of eating disorders amongst Surabaya high school students in the hope of lowering the rate of eating disorders and mortality.

This research takes place at SMAN 2 Surabaya, a high school with 1055 students from a variety of backgrounds. In addition to serving a diverse student body, this high school offers a specific nutrition course and actively promotes it through the provision of healthy and fresh canteen food. The school also conducts an annual anthropometric checkup, as well as blood sugar and hemoglobin tests. With all the factors above, this high school is an ideal location for this research to take place.

METHODS

This research uses a cross-sectional research design, and it is observational analytic research. 60 participants are all students from one of Surabaya's high schools in July – August 2023. Participants were taken through a random stratified sampling, 20 participants from each grade (grades 10, 11, and 12). This research was approved by the Universitas Airlangga Medical Faculty, Health Research Ethical Committee under the ethical exemption number No. 224/EC/KEPK/FKUA/2022

Sample size was calculated with a correlation sample calculation, using the following equation:

Total sample size = N = [(Zα+Zβ)/C]2 + 3 = 52 The standard normal deviate for α = Zα = 1.9600 The standard normal deviate for β = Zβ = 0.8416 C = 0.5 * ln[(1+r)/(1-r)] = 0.4001

r = 0.38 (r-value from a previous cross-sectional study [11].

The primary data will be collected through two adapted close-ended questionnaires (Sociocultural Attitudes Towards Appearance Questionnaire – 4 (SATAQ-4) by Thompson et al. (2011) and a modified version of the Eating Attitude Test – 26 items (EAT-26) by Garner et al. (1983)) which will be distributed to the participants through an online platform. For physical changes, a questionnaire will be made with 4 items. It will first undergo a validity test before being analyzed.

SATAQ-4 (Cronbach's Alpha = 0.93) measures social culture factors with 3 subscales: pressure from peers, parents, and media. Along with physical change questions, the scoring will use a Likert scale from 1-5, the higher the score the greater the severity. During the analysis, both the total score of sociocultural factors and the total score of each subscale will be analyzed.

EAT-26 (Cronbach's Alpha = 0.909), identifies the presence of risk of eating disorder based on attitudes, feelings, and behaviors related to eating. It also uses a Likert scale (Always - Usually - Often - Sometimes - Rarely - Never). For the interpretation: Always (3) - Usually (2) - Often (1) - Sometimes (0) - Rarely (0) - Never (0). If the total score is > 20 then participants will be categorized as at risk of eating disorders. The total score will be used during the analysis.

Data collected is then analyzed using the software, Statistical Product and Service Solution version 29 (SPSS) by International Business Machines Corporation. Before starting the analysis, a normality test is conducted. Since data was not normally distributed, therefore, Spearman's rank correlation coefficient is used. This will be conducted using $p < 0.05$.

RESULTS

Table 1 Distribution data of participants' gender in one of Surabaya's high schools Surabaya in July – August 2023

Variables	Total N = 60 (%)
Gender	
Female	43 (71.7)
Male	17 (28.3)
Age	
15 years old	19 (30.2)
16 years old	16 (25.4)
17 years old	23 (36.5)
18 years old	2 (3.3)
Grade	
Grade 10	20(31.5)
Grade 11	20 (31.5)
Grade 12	20 (31.5)

According to Table 5.1, there was a total of 60 participants in the research. Overall, there was more female (71.7%) than male. Participants' age ranges from 15 to 18 with most participants being 17 years old. Due to the random stratified sampling technique, there are 20 participants from each grade.

The risk of eating disorders was measured using the EAT-26 by Garner et al. (1983). The table divides the EAT-26 score into two groups which are < 20 and ≥ 20. Scoring ≥ 20 means the participants are at high risk of eating disorders as it indicates a high concerning level regarding eating behavior and dieting. Statistically, the results for EAT-26 total scoring have a mean of 15.78, a median of 13.5, a range of 1 - 59, and an SD of 10.607. Accordingly, the result shows that 87% of the scores.

Table 2 Correlation between physical changes, peer pressure, familial pressure, and media pressure with the risk of eating disorders

		Physical Changes	Peer Pressure	Familial Pressure	Media Pressure
EAT26 Score	Spearman's rho Correlation Coefficient	.161	.199	. 359*	.240
	Sig. (2-tailed)	.220	.128	.005	.065
	N	60	60	60	60

*. Correlation is significant at the 0.01 level (2-tailed)

Table 3 Correlation between physical changes, sociocultural pressure with the risk of eating disorder

		Physical Changes	Sociocultural Pressure
EAT26 Score	Spearman's rho Correlation Coefficient	.161	.352**
	Sig. (2-tailed)	.220	.006
	N	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

- There is no significant correlation between physical change and the risk of eating disorders.
- There is a significant positive relationship between social culture and the risk of eating disorders.
- There is no significant correlation between peer pressure and the risk of eating disorders.
- There is a significant positive correlation between familial pressure and the risk of eating disorders which was statistically significant.
- There is no significant relationship between media pressure and the risk of eating disorders.

DISCUSSION

The results indicate that 26.7% of the participants are experiencing a high risk for eating disorders. Compared to a cross-sectional study in West Jakarta, which found 56.5% of 294 international high school students at risk of eating disorders [12], this number is lower. The lower percentage compared to other studies may be due to the students' awareness of nutrition health, which the school promotes by providing healthy and fresh canteen food. The school also conducts an annual anthropometric checkup, as well as blood sugar and hemoglobin tests.

To answer the research's objective, physical changes do not have a significant effect on the risk of eating disorders in a public high school in Surabaya. Participants who are uncomfortable with their body changes score low on the EAT-26 questionnaire. However, a randomized controlled trial in Lithuania revealed that adolescents who valued their bodies had a lower risk of disordered eating (Baceviciene and Jankauskiene, 2020). Another study involving adolescents from Chile discovered a significant positive correlation between body distress and the risk of eating disorders [13].

The study's findings show that the relationship between sociocultural pressure and the risk of eating disorders is consistent with previous studies.

The research result shows that there is no significant correlation between peer pressure and the risk of eating disorders; participants felt the need to change their appearance due to their friends' comments. Another study with participants aged between 14 and 16 shows a similar result where there is a significant relationship between peer pressure and disordered eating behavior. Others show a similar pattern in peer teasing and pressurizing with the risk of eating disorders, as it shows a positive association with appearance-based rejection; however, after 12 months, participants do not show any significant association between the 2 variables [14, 15].

Specifically, there is a significant correlation between familial pressure and the risk of eating disorders; participants who felt pressured by their family members to improve their appearance and decrease their body weight gave higher scores in EAT-26. Researchers also report a similar result, indicating that the psychological control of parents significantly influences the eating behaviors of adolescents. In a 12-month study involving 365 young adolescents in Australia, the connections between various factors at the start of the study and the participants' feelings about their appearance [16], were investigated. They found that what parents said about appearance was the most significant factor associated with teenagers' self-esteem growth and increases in the long term, while what peers or the media said didn't seem to make a big difference from the short to the long term [15]. Lastly, a systemic review paper regarding eating disorders during the pandemic showed that being isolated from social interactions made the symptoms worse for people with eating illnesses who had to stay at home with their families [17].

The influence of media pressure on adolescents is closely tied to the development of eating disorders, as it has always caused adolescents to unconsciously assimilate the standard of beauty. Researchers conducted a study in three high schools in South China, revealing a significant correlation between the two factors, with female students showing a stronger correlation than male students [18]. A study targeting 11th graders in 26 Lithuanian cities revealed a positive correlation between media pressures, thin body internalization, and disordered eating [19]. State Senior High School 2 Mataram conducted another study with 323 respondents from grades X to XII, which found a significant relationship between gadget addiction and BMI, as well as between diet and BMI, suggesting that excessive gadget use during meals influences eating behaviors and nutritional status. It also acknowledges the limitations of the study, given its cross-sectional nature, and recommends further research that takes into account a wider range of influencing variables beyond those addressed [20]. Finally, a German study on female adolescents found no significant correlation between media pressure and the risk of eating disorders [21]. This finding aligns with our research, which found a positive correlation but no significant relationship between the two factors.

CONCLUSION

26.7% of students from one of Surabaya's high schools scored high risk for eating disorders. While there is no significant correlation between physical changes and the risk of eating disorders in one of Surabaya's high schools, there is a significant positive correlation between sociocultural and the risk of eating disorders in one of Surabaya's high schools. Familial pressure from sociocultural pressures appeared to be the only factor to have a significant correlation.

This research possesses the potential for expansion, as it is apparent that numerous additional factors, such as biological (genetics), developments (trauma), and psychological factors (perfectionism, and obsessive-compulsive personality) [22] have the capacity to exert influence on adolescents developing eating disorders. As the risk of eating disorders is significant in this study, educating

high school students regarding the symptoms, treatment, and management of eating disorders would be beneficial for society.

There are several limitations in this research which include:

1. The research sample was taken in only one high school in Surabaya; therefore, it does not represent all high school students in Surabaya.
2. The research was measured using a self-questionnaire, the chance of the participants being subjective or over-evaluating should not be excluded.
3. The quantitative approach makes it easy to gather and analyze data consistently.

However, this approach also restricts the ability to adjust and change the research questionnaire based on new insights and ideas that might come up.

ACKNOWLEDGEMENTS

ACKNOWLEDGMENTS

Alhamdulillah, praise be to Allah the Almighty of God the most Gracious and the most Merciful, first, the writer would like to thank God for His Blessing in the completion of this thesis.

I would like to express my heartfelt gratitude to all those who contributed to the success and completion of this research project. Your unwavering support and dedication have been invaluable, and we extend our sincerest thanks to the research participants, for their willingness to share their time, their contributions are deeply appreciated; Family and friends, for their patience, understanding, and words of encouragement have been a constant source of motivation.

This research would not have been possible without the collective efforts of everyone involved.

CONFLICT OF INTEREST

There is no conflict of interest in this research.

FUNDING

There is no sponsorship in funding.

REFERENCES

[1] "Mental health of adolescents," World Health Organization, https://www.who.int/news- room/fact-sheets/detail/adolescent-mental-health

[2] D. Van Hoeken and H. W. Hoek, "Review of the burden of eating disorders: mortality, disability, costs, quality of life, and family burden," Curr. Opin. Psychiatry, vol. 33, no. 6, pp. 521–527, Nov. 2020, doi: 10.1097/YCO.0000000000000641.

[3] H. A. Ghazzawi et al., "The global prevalence of screen-based disordered eating and associated risk factors among high school students: systematic review, meta-analysis, and meta- regression," J. Eat. Disord., vol. 11, no. 1, p. 128, Aug. 2023, doi: 10.1186/s40337-023-00849- 1.

[4] L. Breehl and O. Caban, "Physiology, Puberty," in StatPearls, Treasure Island (FL): StatPearls Publishing, 2023. Accessed: Jul. 20, 2023. [Online]. Available: http://www.ncbi.nlm.nih.gov/books/NBK534827/

[5] J. Shen, J. Chen, X. Tang, and S. Bao, "The effects of media and peers on negative body image among Chinese college students: a chained indirect influence model of appearance comparison and internalization of the thin ideal," J. Eat. Disord., vol. 10, no. 1, p. 49, Dec. 2022, doi: 10.1186/s40337-022-00575-0.

[6] S. Helfert and P. Warschburger, "A prospective study on the impact of peer and parental pressure on body dissatisfaction in adolescent girls and boys," Body Image, vol. 8, no. 2, pp. 101–109, Mar. 2011, doi: 10.1016/j.bodyim.2011.01.004.

[7] M. Ivanović, S. Milosavljević, and U. Ivanović, "Sociocultural influences of parents on body dissatisfaction in adolescents," Phys. Educ. Sport Centuries, vol. 4, no. 1, pp. 45–70, 2017, doi: 10.1515/spes-2016-0021.

[8] B. Jiotsa, B. Naccache, M. Duval, B. Rocher, and M. Grall-Bronnec, "Social Media Use and Body Image Disorders: Association between Frequency of Comparing One's Own Physical Appearance to That of People

Being Followed on Social Media and Body Dissatisfaction and Drive for Thinness," Int. J. Environ. Res. Public. Health, vol. 18, no. 6, p. 2880, Mar. 2021, doi: 10.3390/ijerph18062880.
[9] M. F. Flament, E. M. Hill, A. Buchholz, K. Henderson, G. A. Tasca, and G. Goldfield, "Internalization of the thin and muscular body ideal and disordered eating in adolescence: The mediation effects of body esteem," Body Image, vol. 9, no. 1, pp. 68–75, Jan. 2012, doi: 10.1016/j.bodyim.2011.07.007.
[10] NHS England "One in Five Children and Young People had a Probable Mental Disorder in 2023" https://www.england.nhs.uk/2023/11/one-in-five-children-and-young-people-had-a-probable-mental-disorder-in-2023/#:~:text=In%202023%2C%2012.5%25%20of%2017,%25)%20in%20this%20age%20group.
[11] L. M. Schaefer, J. A. Harriger, L. J. Heinberg, T. Soderberg, and J. Kevin Thompson, "Development and validation of the sociocultural attitudes towards appearance questionnaire-4- revised (SATAQ-4R): DEVELOPMENT AND VALIDATION OF THE SOCIOCULTURAL ATTITUDES," Int. J. Eat. Disord., vol. 50, no. 2, pp. 104–117, Feb. 2017, doi: 10.1002/eat.22590.
[12] S. S. Setijawan and F. Kurniawan, "Relationship between the Risk of Eating Disorders and the Concentration Capacity of High School Students," Althea Med. J., vol. 9, no. 4, Dec. 2022, doi: 10.15850/amj.v9n4.2530.
[13] A. Caqueo-Urízar et al., "Associations between sociocultural pressures to be thin, body distress, and eating disorder symptomatology among Chilean adolescent girls," Body Image, vol. 8, no. 1, pp. 78–81, Jan. 2011, doi: 10.1016/j.bodyim.2010.11.004.
[14] N. A. Al-sheyab, T. Gharaibeh, and K. Kheirallah, "Relationship between Peer Pressure and Risk of Eating Disorders among Adolescents in Jordan," J. Obes., vol. 2018, p. 7309878, Sep. 2018, doi: 10.1155/2018/7309878.
[15] H. J. Webb, M. J. Zimmer-Gembeck, A. M. Waters, L. J. Farrell, D. Nesdale, and G. Downey, "'Pretty Pressure' From Peers, Parents, and the Media: A Longitudinal Study of Appearance-Based Rejection Sensitivity," J. Res. Adolesc., vol. 27, no. 4, pp. 718–735, Dec. 2017, doi: 10.1111/jora.12310.
[16] J. M. Berge, M. Wall, N. Larson, M. E. Eisenberg, K. A. Loth, and D. Neumark-Sztainer, "The unique and additive associations of family functioning and parenting practices with disordered eating behaviors in diverse adolescents," J. Behav. Med., vol. 37, no. 2, pp. 205–217, Apr. 2014, doi: 10.1007/s10865-012-9478-1.
[17] M. Miniati et al., "Eating Disorders Spectrum During the COVID Pandemic: A Systematic Review," Front. Psychol., vol. 12, p. 663376, Sep. 2021, doi: 10.3389/fpsyg.2021.663376.
[18] H. Huang et al., "Validation of sociocultural attitudes towards appearance questionnaire and its associations with body-related outcomes and eating disorders among Chinese adolescents," Front. Psychiatry, vol. 14, p. 1088769, Mar. 2023, doi: 10.3389/fpsyt.2023.1088769.
[19] R. Jankauskiene and M. Baceviciene, "Media Pressures, Internalization of Appearance Ideals and Disordered Eating among Adolescent Girls and Boys: Testing the Moderating Role of Body Appreciation," Nutrients, vol. 14, no. 11, p. 2227, May 2022, doi: 10.3390/nu14112227.
[20] Baiq Meisy Arum Anjani, Danang Nur Adiwibawa, Irsandi Rizki Farmananda, and Kadek Dwi Pramana, "The Relationship Of Gadget Addiction And Diet Pattern To The Body Mass Index (BMI) Of Adolescents Ages 15-17 Years Old," JPS, vol. 12, no. 2, pp. 149–155, Nov. 2023, doi: 10.20473/jps.v12i2.42253.
[21] L. Muth, K.-H. Leven, G. Moll, O. Kratz, and S. Horndasch, "Effects of the COVID-19 Restrictions on Eating Behaviour and Eating Disorder Symptomology in Female Adolescents," Int. J. Environ. Res. Public. Health, vol. 19, no. 14, p. 8480, Jul. 2022, doi: 10.3390/ijerph19148480.

[22] P. Balasundaram and P. Santhanam, "Eating Disorders," in StatPearls, Treasure Island (FL): StatPearls Publishing, 2023. Accessed: Jun. 14, 2023. [Online]. Available: http://www.ncbi.nlm.nih.gov/books/NBK567717/