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Exploring the Association of Socioeconomic Factors with Disordered Eating: An Empirical Study on Diverse Adults in India

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Abstract

Introduction: This study aims to explore Disordered Eating (DE) in an Indian adult sample, shedding light on patterns and factors unique to their socioeconomic context.
Method: The study employed quantitative methodology and random sampling to collect data from September to December 2022 through an online survey from diverse Indian adults (n=847). The Disordered Eating Attitude Scale - a short version - and a demographic sheet assessed attitudes towards food and socioeconomic factors. The SPSS Version 24 facilitated analysis through independent samples t-test, Pearson's correlation coefficient, and linear and binary regression analyses.
Results: Findings revealed a significant difference among sex categories ($p=0.044$), with women scoring higher than men, and also among living status ($p = 0.015$), with participants living away from home scoring higher than those living with family. Furthermore, age and living status were negatively correlated with DE and could predict DE ($p<0.05$) behaviors.
Conclusion: To our knowledge, this is the first study to explore DE among diverse Indian adults. Young adults, women, and participants living away from home reported significantly higher DE patterns. There were no associations of DE with marital status, employment, and household income, suggesting DE could be present across all socioeconomic groups.

Keywords: Disordered Eating, Eating Behaviors, Food Habits, Culture, India

Introduction

Disordered Eating (DE) refers to irregular eating patterns that can cause extreme distress around food or body image [1]. It includes one or several behaviors of restricting (e.g., dieting, skipping meals), binging, purgative practices (e.g., using laxatives), and inadequate methods to control weight (e.g., over-exercising), shape, and food intake [2]. These symptoms are similar to those of eating disorders, which are mental health concerns that require professional diagnosis and intervention [3]. Recently, epidemiologic investigations into DE have surged, revealing a concerning trend of escalating low-nutrient food consumption globally [4]. For instance, a longitudinal study spanning a decade has documented increases in various DE behaviors [5]. DE is a well-established risk factor for the development of eating disorders1 and other severe physical and mental health conditions [6.] Considering that the severity of DE could cause public health concerns, it is crucial to study and support individuals indulging in DE [1]. DE is often looked at from a biological, psychological, or physiological lens; however, a social lens also exists that considers social factors to influence the development of distressing eating behaviors6. While global studies find significant associations between DE and age [7], sex [8], household income [9], living status [10], marital status [7], employment [11], and religion [12], a systematic review informs about a dearth of these global

Studies [13], highlighting far less to be known in the South Asian context [14]. In the last decade, despite a significant increase of 328% in published eating disorder research in India [15], exploration of DE continues to be insufficient. A clearer delineation between global trends and specific trends in Indian research is warranted to underscore the distinct contribution of this study.

The earliest study on DE in the year 1995 found that 14.8% of students had Eating Distress Syndrome (EDS) [16]. Later (1998), they found similar results, with 11% of students having EDS along with a fear of fatness. Other Indian studies conducted on young adults report the prevalence of DE to be as high as 20-30% [8, 17-20]. One study also found that 56% of students reported unhealthy eating after relocating away from home for university [21]. Additionally, it was known that DE is widely prevalent among women1. However, only in the last decade has DE among men received its due attention [22]. Considering the risk of developing DE in men (16.5%) compared to women (8.7%) in India [8], the present study includes a diverse sample to challenge the historical notion of DE primarily affecting women. Culture-specific research is essential to understand the unique socioeconomic associations and develop tools for support, in under-researched populations like India. Hence, this study aims to investigate DE from a socioeconomic perspective in India.

Although only a handful of studies report DE cultural underpinnings in India [8, 23], previous studies have often perpetuated stereotypes by primarily focusing on young, affluent women, possibly due to selective sampling biases. This has led to disparities in awareness, identification, and treatment of men [24], older adults [25], and individuals from low Social Economic Status (SES) groups [9]. Most Indian literature comprises of clinical case studies and culturally misaligned questionnaires centered on adolescent women, medical students, and middle-high SES groups from the Hindu community [26]. In a country like India, where mental health is accompanied by stigma, such stereotypes and disparities can often lead to greater stigma in help-seeking [27]. Addressing this gap, to our knowledge, this study is the first to challenge stereotypes by including a diverse sample of men, older adults, and working professionals across socioeconomic groups. By doing so, the study seeks to comprehensively investigate the association between socioeconomic factors and DE among diverse adult populations in India, thereby bridging the existing research gap and fostering a more inclusive understanding of DE.

Method

The research was an ex-post-facto study employing a quantitative design. The association between socioeconomic factors was analyzed using SPSS version 24. Descriptive statistics (means, standard deviations, and percentages) were calculated for age, sex, employment status, living status, marital status, and household income (Table 1). Total sample (n) and percentage were calculated for religion and location (Table 1). An independent sample's t-test (Table 2), Pearson's correlation coefficient (Table 3), and linear and binary regression analysis (Table 4) were conducted for analysis of the association. Cohen's d value for the parameters was also calculated to assess the Effect Size. Test for normality (Skewness=1.05; Kurtosis= 1.33) found that the data was not normally distributed. However, we used parametric tests for analysis with the support of the Central Limits Theorem. The significance level was set to 5% ($p < 0.05$).

The researchers employed random sampling to collect the data through an online Google form from September to December 2022. Fraenkel and Wallen suggest that the minimum acceptable sample size for a correlational study is no less than 3028. Therefore, to represent a larger and more accurate sample, a total of 1027 participants were screened for the study out of which 847 participants were included nationwide based on the eligibility criteria. The form collected participants' consent, socioeconomic information, and responses to disordered eating attitudes. The study included participants who were i) above 18 years of age and ii) Indian residents and excluded those who were i) below 18 years of age (n=13), ii) were non-Indians (n=1), iii) lived with a chronic illness that medically influenced their eating behaviors29 (n=154) and iv), identified as Transgender or Non-Binary (TGNB) (n=12). The participants from the TGNB group were excluded as their sample was limited to comparatively analyze the data alongside cisgender participants. To observe ethics, the data collection complied with ethical standards of human experimentation following the Helsinki Declaration. Participants were informed about the study's purpose, data confidentiality, and helpline numbers for support and then provided their consent for the study.

The tools used in this study were as follows:

Socioeconomic Information: Participants self-reported their age, sex, religion, residential state, education, employment status, marital status, living status, and annual household income (Table 1).

Disordered Eating Attitude Scale-short (DEAS-s): This scale was developed by M. S Alvarenga, Thanise Santos and Dalton Andrade in 2020 [30]. It measures DE on a unidimensional scale based on thoughts, beliefs, feelings, and relationships with food. It consists of 17 questions, among which 11 questions are on a two-Likert scale with a score of 1 and 5, and the other six questions are on a four-Likert scale ranging from scores 1 to 4. It measures different types of eating behaviors, including restricting, bingeing, and purging. The lowest score on DEAS is 17, and the highest score is 80. On a scale that measures DE from high to low, a higher score suggests distress about eating and body weight, irregular eating behaviors, and a high risk of DE30.

DEAS-s was initially tested on a cohort (n=2,490) with heterogeneous eating attitudes and found an adequate internal consistency (Cronbach Alpha (α) = 0.88) and goodness-of-fit (Root Mean Square Error of Approximation = 0.05; Standardized Root Mean Square Residual = 0.05; Comparative Fit Index = 0.98; and Tucker-Lewis Index = 0.98). DEAS-s is a short-form adaptation of DEAS (2010) [31] that comprises 25 items that are validated in various languages across diverse samples

[32]. We have used the original version, which is in English. The reliability was found using Cronbach alpha (0.71) and validity using Kaiser Meyer Olkin (KMO) and Bartlett's test (0.82).

Results

Table 1 outlines the sample's socioeconomic characteristics, showing that most participants are between 18-42 years, belong to middle SES groups (41%), are from the Hindu community (82%), and reside in northern India (60%). It reflects representation across various income, religion, and location categories.

Table 2 indicates independent samples t-test results to assess means between different groups. Results find a significant difference among the sex category ($p<0.05$), with women having a significantly higher mean and exhibiting higher DE than men. A significant difference is also found in the living status ($p<0.05$), wherein participants living away from their families show a higher mean. Here, a greater mean suggests higher DE among group members. There were no significant differences between employment status and marital status.

Table 3 outlines the Pearson correlation analysis to determine the association between age and household income with DE. Results show that DE is negatively correlated with age ($r = -0.11$, $p<0.05$), indicating that as age increases, DE decreases. However, no significant correlation was found between DE and household income ($r=-0.051$). Eta correlation determines the nonlinear relationship between the categorical variable (living status) and the scaled variable (DE). The Eta correlation ($r=0.08$, $p < 0.05$) found a significant negative association between living status and DE (Eta (η) = 0.08, Eta squared ($\eta 2$) = 0.007, $r= -0.08$, $p <0.05$).

Table 1. Means, Standard Deviations, Percentage

Baseline Characteristics	n (%)	M(SD)
Age		29.01(11.452)
18-22	325 (36.2)	32.25 (10.19)
23-42	430 (47.9)	31.59 (10.13)
43-57	54 (6.0)	27.83 (7.50)
58-75	38 (4.2)	24.5 (4.98)
Sex		1.39 (0.48)
Women	570 (63.5)	31.93 (10.40)
Men	327 (36.5)	30.52 (9.06)
Employment status		1.50 (0.50)
Student	420 (46.8)	31.93 (9.81)
Working	427 (47.6)	30.86 (10.02)
Living status		1.68 (0.46)
Living away	274 (30.5)	32.63 (10.59)
Living with family	573 (63.9)	30.79 (9.54)
Marital status		1.36 (0.47)
Not Married	546 (60.9)	31.85 (10.22)
Married	301 (33.6)	30.55 (9.33)
Household income		1.99 (0.75)
Low	245 (27.3)	31.39 (9.47)
Middle	367 (40.9)	31.78 (9.76)
High	235 (26.2)	30.77 (10.63)
Religion		6.14 (1.52)
Other	11 (1.3)	
Atheist	35 (4.1)	
Christianity	24 (2.8)	
Hindu	699 (82.5)	
Islam	23 (2.7)	
Jainism	35 (4.1)	
Sikh	20 (2.4)	
Location		2.18(1.59)
Northern	500(59.0)	
Eastern	58 (6.8)	
Western	78 (9.2)	
Southern	61(7.2)	
Central	150(17.7)	

Note. M = Mean, SD = Standard Deviation, n = total sample.

Table 2. Independent Samples T-Test

					95% CI for Cohen's d	
Variables	**t**	**df**	**P**	**Cohen's d**	**Lower**	**Upper**
Employment status	1.56	845	0.117	0.10	-0.02	0.24
Marital status	1.81	845	0.063	0.13	-0.01	0.27
Sex	2.01	845	0.044*	0.14	0.001	0.28
Living status	2.53	845	0.015*	0.18	0.04	0.33

Note. CI = Confidence Interval ($p < 0.05$).

Table 4 shows the regression analysis of age, household income, and living status. A linear regression established that age could significantly predict DE (B = 34.98, $p < 0.05$), accounting for 1.9% of the explained variability in DE patterns. However, linear regression for household income did predict DE. A binary logistic regression was also performed to ascertain the effects of living status on participants' likelihood of DE. The results were statistically significant ($\chi2(1) = 6.258$, $p < 0.05$). The model explained 0.01% (Nagelkerke *R2*) of the variance in DE and correctly classified 67.5% of cases.

Table 3. Correlations Coefficients

	1	2	3
1. Disordered Eating	-		
2. Age	-0.14**	-	
3. Income	-0.02	0.33***	-

Note. * p<0.05, ** p<0.01, *** p<0.001

Table 4. Regression Analysis

Variables	B	SE	t	p	Adjusted R squares
Age	34.98	0.92	38.005	0.001	0.01
	-0.12	0.03	-4.20	0.001	
Income	31.98	0.96	33.18	0.001	-0.001
	-0.30	0.45	-0.66	0.505	

Note. SE = Standard error, significant at p < 0.05

Table 5. Binary Logistic Regression

Variables	β	SE	p	Exp (B)	Nagelkerke R square	Percentage	Chi-Square	df	p
Living	-0.01	0.007	0.012	0.98	0.01	67.5	6.25	1	0.012
	1.31	0.24	0.000	3.72					

Note. Significant at p < 0.05

Discussion

This study investigated the association between DE and various socioeconomic factors. The researchers found significant patterns between socioeconomic factors and DE in diverse Indian adults.

This study, comprising of participants aged 18 to 75 years, identified age as a significant predictor of DE, aligning with both global [7,10] and Indian research trends1. In India, the vulnerability to DE typically spans between 18 and 25 years [23], coinciding with global patterns where DE is most prevalent among the young1. Contributing factors may include pervasive beauty standards, media influence, peer pressure, and family attitudes, particularly affecting university students [18]. Additionally, cultural influences such as western media exposure, higher BMI, mood-related feeding patterns, and stressors contribute to DE risk in India [27]. Young adults are also reported to increasingly engage in extreme weight control behaviors compared to older adults [4]. Notably, while younger adults are extensively studied, research on older adults remains limited [25]. Future research should explore cultural nuances impacting DE across different age cohorts and devise strategies to better understand and address DE in older adults, bridging the current research gap primarily focused on younger populations.

This study found higher DE scores in women than men. Societal pressures in India, such as beauty and body policing and extreme body ideals, contribute to a higher fear of fatness, excessive restriction, and body insecurity among women [21]. Conversely, men face pressure to binge eat for a muscular physique [33]. Epidemiologically, eating distress and body-image concerns have been perceived as a “feminine issue” [1]. While recent studies challenge this gendered exclusion [22], highlighting similar DE behaviors between sexes in South Asia [10] and India [8, 34], many persistently find higher distress among women globally35. Future research should aim for diverse samples to challenge historical gender biases in DE research and explore the rising rates of DE in men and other gender identities.

Contrary to previous studies that reported DE prevalence mostly in high-income groups and countries [36], this study unveils a significant finding that the household income level does not predict or correlate with DE. Recent studies [9] also challenge traditional stereotypes, reporting low SES groups may experience equal or higher levels of DE [13]. The escalating prevalence of DE in low-income countries underscores the urgent need for deeper investigation into underlying factors, potentially linked to globalization, urbanization, or economic growth [10]. However, more investigation is needed to understand the nuanced relationship between income and DE to shape effective public health policies and interventions tailored to India's diverse socioeconomic landscape.

This study found no significant difference in DE among students and working professionals. Previous literature found high DE in young students, highlighting risk factors to be poor body image [17, 37], family influences [38], and low self-esteem [38]. Among working professionals, DE has been associated with different social variables, such as a pressured working environment, burnout, etc., to influence DE behaviors negatively [39]. A recent study proposed that DE is more prevalent among students than employed individuals due to higher SES and subsequent better access to nutrient-dense food [11].

Results suggest that DE patterns don’t differ significantly between married and unmarried groups. This is consistent with previous research findings, which indicate that

relationship status does not influence DE [40]. However, some studies also report that being single can be a risk factor for developing DE and found higher binge eating [5] and meal-skipping behaviors among them [41]. Additionally, research also shows that being in a healthy relationship provides social support and body confidence that may reduce DE [42], whereas being in an unhealthy relationship or experiencing romantic difficulties can potentially increase the likelihood of DE [43]. However, more research is needed to investigate relationships as protective or risk factors in the Indian context.

Interestingly, we found that individuals living away from their families exhibit more signs of DE than those who reside with them. Studies also find that living status significantly predicts DE [10]. Previous studies have recorded that most hostel students consume less nutrient-dense food after moving away from home [21, 44]. A recent Indian study suggested that young adults were more likely to eat emotionally than middle-aged adults because they have a declining family support system once they start living independently [34]. Studies highlight that family meals may play a protective role against DE [45]. Living and eating alone have also been associated with the consumption of less nutritious food and meal-skipping behaviors [41] as opposed to the availability and consumption of nutritious meals when living with family [11]. We believe that the role of food goes beyond nutrition within Indian families; therefore, further investigation is required to explore the reason behind high DE among independently living individuals.

Religion plays a significant role in determining one's eating habits [12]. This study included representation from seven religious groups (Table 1) but could not analyze the data due to the irregular group size, limiting important insights of religion on eating habits. Indian literature records eating distress primarily among members of the Hindu community, which could be due to the lack of inclusion of other religious groups in the cohorts [26]. Future research should employ methods ensuring balanced representation across religious groups. This could involve targeted recruitment strategies to facilitate robust analysis and nuanced conclusions regarding the interplay between religion and DE.

The administered questionnaire (DEAS-s) is a self-reporting instrument that poses social desirability biases and also implements a unidimensional scale, constraining the scope for screening for severity and diagnosis. Furthermore, using the English version excludes non-English speaking participants. Despite these limitations and after multiple pilots, DEAS-s was found to be the most culturally suited, given the lack of valid and reliable instruments to study DE. Additionally, the cohort is short on gender and religious diversity, limiting the scope to analyze the findings inclusively. Future research should prioritize addressing these limitations by incorporating more diverse samples, encompassing a wider range of gender identities and religious affiliations. Doing so would enhance the robustness and generalizability of findings, facilitating a more comprehensive understanding and analysis of DE in the Indian context.

Conclusion

DE behaviors are also influenced by socioeconomic factors that are unique to every culture. However, there is scarce literature on DE in India. This pioneering study explores these associations among diverse Indian adults. It found that young adults, women, and participants living away from home had significantly higher DE patterns. Contrary to previous notions, DE patterns did not significantly differ based on household income, challenging stereotypes of DE prevalence only among high-income groups. These findings highlight the critical need for culturally sensitive and inclusive research to understand the nuanced psychosocial associations contributing to DE in the Indian context. Such insights are essential for informing the development of effective interventions and public health strategies aimed at addressing DE and promoting overall well-being among diverse populations in India.

Conflict of Interest

The authors declare no conflicts of Interest.

Ethical Approval

Ethical considerations were observed by the declaration of Helsinki including obtaining informed consent from the participants, obtaining the necessary permissions from the authorities for sampling, and ensuring the participants about the confidentiality of personal information.

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References

1. Alhaj OA, Fekih-Romdhane F, Sweidan DH, Saif Z, Khudhair MF, Ghazzawi H, et al. The prevalence and risk factors of screen-based disordered eating among university students: A global systematic review, meta-analysis, and meta-regression. Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity. 2022;27(8):3215–43. doi: 10.1007/s40519-022-01452-0.

2. Pereira RF, Alvarenga M. Disordered eating: Identifying, treating, preventing, and differentiating it from eating disorders. Diabetes Spectrum. 2007;20(3):141–8. doi: 10.2337/diaspect.20.3.141.

3. Bojorquez I, Bustos J, Valdez V, Unikel C. Life course, sociocultural factors and disordered eating in adult Mexican women. Appetite. 2018;121:207–14. doi:10.1016/j.appet.2017.11.085

4. Neumark-Sztainer D, Wall M, Larson NI, Eisenberg ME, Loth K. Dieting and disordered eating behaviors from adolescence to young adulthood: Findings from a 10-year longitudinal study. Journal of the American Dietetic Association. 2011;111(7):1004–11. doi:10.1016/j.jada.2011.04.012

5. Hay PJ, Mond J, Buttner P, Darby A. Eating disorder behaviors are increasing: Findings from two Sequential Community Surveys in South Australia. PLoS ONE. 2008;3(2). doi:10.1371/journal.pone.0001541

6. Pennesi J-L, Wade TD. A systematic review of the existing models of disordered eating: Do they inform the development of effective interventions? Clinical Psychology Review. 2016;43:175–92. doi: 10.1016/j.cpr.2015.12.004.

7. Santana DD, Mitchison D, Mannan H, Griffiths S, Appolinario JC, da Veiga GV, et al. Twenty-year associations between disordered eating behaviors and sociodemographic features in a multiple cross-sectional sample. Psychological Medicine. 2022;53(11):5012–21. doi: 10.1017/s0033291722001994.

8. Vijayalakshmi P, Thimmaiah R, Reddy S, B.V K, Gandhi S, Bada S.

Gender differences in body mass index, body weight perception, weight satisfaction, disordered eating and weight control strategies among Indian Medical and nursing undergraduates. Investigación y Educación en Enfermería. 2017;35(3):276–84. doi: 10.17533/udea.iee.v35n3a04.
9. Larson N, Loth KA, Eisenberg ME, Hazzard VM, Neumark-Sztainer D. Body dissatisfaction and disordered eating are prevalent problems among U.S. young people from diverse socioeconomic backgrounds: Findings from the EAT 2010–2018 study. Eating Behaviors. 2021;42:101535. doi: 10.1016/j.eatbeh.2021.101535.
10. Pengpid S, Peltzer K. Risk of disordered eating attitudes and its relation to mental health among university students in ASEAN. Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity. 2018;23(3):349–55. doi: 10.1007/s40519-018-0507-0.
11. Mei D, Deng Y, Li Q, Lin Z, Jiang H, Zhang J, et al. Current status and influencing factors of eating behavior in residents at the age of 18~60: A cross-sectional study in China. Nutrients. 2022;14(13):2585. doi: 10.3390/nu14132585.
12. Tanton J, Dodd LJ, Woodfield L, Mabhala M. Eating behaviours of British university students: A cluster analysis on a neglected issue. Advances in Preventive Medicine. 2015;2015:1–8. doi: 10.1155/2015/639239.
13. Huryk KM, Drury CR, Loeb KL. Diseases of affluence? A systematic review of the literature on socioeconomic diversity in eating disorders. Eating Behaviors. 2021;43:101548. doi: 10.1016/j.eatbeh.2021.101548.
14. Hoodbhoy Z, Zahid N, Iqbal R. Eating disorders in South Asia: Should we be concerned? Nutrition Bulletin. 2015;40(4):331–4. doi: 10.1111/nbu.12177.
15. Grover S, Gupta BM. Eating Disorders Research in India: A Bibliometric Assessment of Publications Output during 2000–2019. Journal of Mental Health and Human Behaviour. 2021;26(1):74-7. doi: 10.4103/jmhhb.jmhhb_145_20.
16. Srinivasan TN, Suresh TR, Jayaram V, Fernandez MP. Eating disorders in India. Indian Journal of Psychiatry. 1995;37(1):26-30. PubMed PMID: 21743711; PubMed Central PMCID: PMC2970945.
17. Raval CM, Bhatt RB, Tiwari DS, Panchal BN. Prevalence and characteristics of eating disorders among college students of a nonmetro city of Gujarat. Industrial Psychiatry Journal. 2022;31(1):74-80. doi: 10.4103/ipj.ipj_28_20.
18. Ganguly N, Roy S, Mukhopadhyay S. Association of Socio-culture factors with disordered eating behavior: An empirical study on urban young girls of West Bengal, India. Anthropological Review. 2018;81(4):364–78. doi: 10.2478/anre-2018-0032.
19. Som N, Mishra SK, Mukhopadhyay S. Weight concerns and food habits of adolescent girls in two contrasting ecological regions: A Comparative Study in India. Eating Behaviors. 2016;20:21–6. doi: 10.1016/j.eatbeh.2015.11.006.
20. KG S, Gowda P, TK C. A Cross-sectional Study to Assess the Eating Disorder Among Female Medical Students in A Rural Medical College of Karnataka State. . National Journal of Community Medicine. 2016;7(06):524–7.
doi:https://njcmindia.com/index.php/file/article/view/991.
21. Sheikh F, Manerkar K, Gokhale D. The effect of psychosocial factors on eating behaviors among university students. Indian Journal of Youth and Adolescent Health. 2016;3(2):5-11. doi: 10.24321/2349.2880.
22. Strother E, Lemberg R, Stanford SC, Turberville D. Eating disorders in men: Underdiagnosed, undertreated, and misunderstood. Eating Disorders. 2012 Oct;20(5):346–55. doi:10.1080/10640266.2012.715512
23. Solmi M, Radua J, Olivola M, Croce E, Soardo L, Salazar de Pablo G, et al. Age at onset of mental disorders worldwide: Large-scale meta-analysis of 192 epidemiological studies. Molecular Psychiatry. 2021;27(1):281–95. doi: 10.1038/s41380-021-01161-7.
24. Thapliyal P, Hay PJ. Treatment experiences of males with an eating disorder: A systematic review of qualitative studies. Translational Developmental Psychiatry. 2014;2(1):25552. doi: 10.3402/tdp.v2.25552.
25. Thompson KA, Bardone-Cone AM. Disordered eating behaviors and attitudes and their correlates among a community sample of older women. Eating Behaviors. 2019;34:101301. doi: 10.1016/j.eatbeh.2019.05.004.
26. Vaidyanathan S, Kuppili PP, Menon V. Eating disorders: An overview of Indian Research. Indian Journal of Psychological Medicine. 2019;41(4):311–7. doi: 10.4103/IJPSYM.IJPSYM_461_18.
27. Vaidyanathan S, Menon V. Research on feeding and eating disorders in India: A narrative review. Indian Journal of Psychiatry. 2024 Jan;66(1):9–25. doi:10.4103/indianjpsychiatry.indianjpsychiatry_782_23
28. Fraenkel JR, Wallen NE, Hyun HH. How to design and evaluate research in Education. 11th ed. New York: McGraw Hill; 2023.
29. Quick VM, Byrd-Bredbenner C, Neumark-Sztainer D. Chronic illness and disordered eating: A discussion of the literature. Advances in Nutrition. 2013 May;4(3):277–86. doi:10.3945/an.112.003608
30. Alvarenga M dos, Santos TS, Andrade D. Item response theory-based validation of a short form of the disordered eating attitude scale (Deas-S) to a Brazilian sample. Cadernos de Saúde Pública. 2020;36(2). doi:10.1590/0102-311x00169919
31. Alvarenga M dos, Scagliusi FB, Philippi ST. Development and validity of the disordered eating attitude scale (deas). Perceptual and Motor Skills. 2010;110(2):379–95. doi: 10.2466/pms.110.2.379-395.
32. Alvarenga MS, Koritar P, Pinzon VD, Figueiredo M, Fleitlich-Bilyk B, Philippi ST, et al. Validation of the disordered eating attitude scale for adolescents. Jornal Brasileiro de Psiquiatria. 2016;65(1):36–43. doi: 10.1590/0047-2085000000101
33. Nagata JM, Bibbins-Domingo K, Garber AK, Griffiths S, Vittinghoff E, Murray SB. Boys, bulk, and body ideals: Sex differences in weight-gain attempts among adolescents in the United States. Journal of Adolescent Health. 2019;64(4):450–3. doi:10.1016/j.jadohealth.2018.09.002
34. Pal SN, Moitra P, Madan J. Association of eating habits, sleep quality and perceived stress with emotional eating behaviour among Indian adults: A cross-sectional study. . International Journal of Food Science and Nutrition. 2022;8(1):47–55. doi:ISSN: 2455-4898
35. Liechty JM, Lee M. Longitudinal predictors of dieting and disordered eating among young adults in the U.S. International Journal of Eating Disorders. 2013; 28;46(8):790–800. doi:10.1002/eat.22174
36. Bruch H. The golden cage: The enigma of anorexia nervosa: Harvard University Press; 2001.
37. Gupta S, Kapur D. Body image disturbance, weight perception and body mass index of Female College students in Delhi having normal and disordered eating behaviours. The Indian Journal of Nutrition and Dietetics. 2019;56(2):145. doi: 10.21048/ijnd.2019.56.2.22546.
38. Kapoor A, Upadhyay MK, Saini NK. Relationship of eating behavior and self-esteem with body image perception and other factors among female college students of University of Delhi. Journal of Education and Health Promotion. 2022;11(1):80. doi:10.4103/jehp.jehp_855_21
39. Clohessy S, Walasek L, Meyer C. Factors influencing employees' eating behaviours in the office- based workplace: A systematic review. Obesity Reviews. 2019;20(12):1771–80. doi: 10.1111/obr.12920.
40. Wick MR, Brown TA, Fitzgerald EH, Keel PK. How changing life roles predict eating disorder pathology over 30-year follow-up. Journal of Abnormal Psychology. 2021;130(4):388–98. doi: 10.1037/abn0000669.
41. Wild H, Baek Y, Shah S, Gasevic D, Owen A. The socioecological correlates of meal skipping in community-dwelling older adults: A systematic review. Nutrition Reviews. 2022;81(2):168–79. doi: 10.1093/nutrit/nuac050.
42. Keel PK, Baxter MG, Heatherton TF, Joiner TE. A 20-year longitudinal study of body weight, dieting, and eating disorder symptoms. Journal of Abnormal Psychology. 2007;116(2):422–32. doi: 10.1037/0021-843x.116.2.422.
43. Perry BL, Ciciurkaite G. Contributions of personality to social influence: Contingent Associations between social network body size composition and BMI. Social Science & Medicine. 2019;224:1–10. doi: 10.1016/j.socscimed.2019.01.044.
44. Sanchez-Ruiz MJ, El-Jor C, Abi Kharma J, Bassil M, Zeeni N. Personality, emotion-related variables, and media pressure predict eating disorders via disordered eating in Lebanese University students. Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity. 2017;24(2):313–22. doi: 10.1007/s40519-017-0387-8.
45. Loth K, Wall M, Choi C, Bucchianeri M, Quick V, Larson N, et al. Family meals and disordered eating in adolescents: Are the benefits the same for everyone? International Journal of Eating Disorders. 2014;48(1):100–10. doi: 10.1002/eat.22339.