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Prevalence of Orthorexia Nervosa among Medical Students in Chennai



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ABSTRACT

Background: Orthorexia nervosa (ON) is characterised by an obsession with healthy eating, which may lead to severe physical, psychological and social disorders. It is particularly important to study this problem in order to improve early detection and treatment.

Aim and Objective: The aim of this study was to estimate the prevalence of Orthorexia Nervosa in among medical students in Chennai.

Materials and Methods: Cross-sectional study done at a medical college, among undergraduate medical students. After institutional ethical committee approval, the study was conducted on 306 students. Sociodemographic details were collected and ORTHO-15 questionnaire was used to estimate the prevalence of Orthorexia Nervosa. Data was entered in excel and analysed using SPSS version 22. Chi-square test and Multiple logistic regression were used for data analysis. p- value < 0.05 was considered as statistically significant.

Results: The prevalence of Orthorexia Nervosa among undergraduate medical students was 69.93% (95% CI 64.46 to 75.02%). No significant association was found between age group, gender, BMI category, place of stay and Orthorexia Nervosa.

Conclusion: Orthorexia Nervosa tendency is common among medical students. Better awareness of healthy eating will help prevention of the problem.

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INTRODUCTION

Orthorexia nervosa means preoccupation with eating healthy. First coined by Steven Bratman in 1997 [1], orthorexia nervosa (ON) comes from the Greek word *ortho*, meaning *correct*, and *orexi*, meaning *appetite*. Orthorexia Nervosa is classified as an unspecified feeding and eating disorder in the *Diagnostic and Statistical Manual of Mental Disorders 5th edition* (DSM-5) [2]. Orthorexia is characterized by a pathologic obsession for biologically pure foods, free of herbicides, pesticides, and other artificial substances. Excessive worry about the techniques and materials used in the food elaboration leads to obsession, loss of social relationships, affective dissatisfactions, and obsessive thoughts about foods [3]. Tendency of Orthorexia Nervosa is estimated using ORTHO-15 questionnaire. The ORTHO-15 [4] is the most commonly used psychometric tool in ON research. It has been

translated into several languages including Polish, German, Spanish, Hungarian etc [5]. This 15 item scale adapted items from the original ON screening tool, the Bratman's Orthorexia Test [6].

There has been an increase in number of persons exhibiting an obsessive fascination and behavior towards healthy eating. Healthy eating habits are actually not pathologic; however, excessive preoccupation with consuming healthy food, spending an excessive amount of time with this preoccupation, and experiencing associated dysfunctions in daily life could be considered as a disorder that is linked to behavior and personality. Eating habits vary according to culture, habit, educational level, income and lifestyle. Therefore, this study aimed to determine the prevalence of Orthorexia Nervosa among undergraduate students of a medical college.

MATERIALS AND METHODS

The study was conducted at a Medical College. It was a cross sectional study. The study population were MBBS students studying in

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the second, third and fourth year. About 306 students participated in the study.

First year students were excluded. A pretested semi structured questionnaire and the validated ORTHO-15 was administered to the participants. Donini et al [7] (2005) found that when a score of 40 was taken as the cutoff point in ORTHO-15, the predictive validity of the scale was high and people with an orthorexic inclination could be discriminated. Lower Score indicated tendency for Orthorexia Nervosa. Body mass index was calculated using student's height and weight was calculated and categorized based on the BMI classifications of the World Health Organization. According to this classification, BMI of less than 18.5 is considered underweight; 18.5 to 24.99, normal weight; 25.0 to 29.99, overweight; and 30, obese. The data collected were entered in MS Excel and analysed using SPSS software version 22. Descriptive statistics using mean, standard deviation, and proportions were calculated. Chi-square test and Multiple Logistic Regression were used to find association between risk factors and Orthorexia Nervosa.

RESULTS

This study was conducted on 306 undergraduate medical students. Of the 306 students, 170 (55.6%) were male and 136 (44.4%) were female. The students were aged between 19 and 24 years (mean age, 20.75 ± 1.14 years). The number of the students younger than 21 years was 170 (42.8%), and those older than 21 years, 363 (41.3%). The height of the students ranged between 130 and 189 cm (mean height, 167.61 ± 8.8 cm), and the weight of the students ranged between 40 and 100 kg (mean weight, 62.47 ± 11.69 kg). The BMI value of the students was between 14.1 and 33.7 (mean BMI, 22.21 ± 3.61). Orthorexia -15 scores ranged from 25 to 78 with a mean score of 38.05 with std deviation of 5.6, and median score of 38.0.

The prevalence of Orthorexia Nervosa tendency was 69.93% (95% CI 64.46 to 75.02%) (n= 214). The mean score for orthorexic tendency in the male students was 37.6 with standard deviation of 5.3, and that of female students who had a mean score of 38.3 with std deviation of 5.9. Students younger than 21 years with orthorexia tendency, which was lower (69%) than the students older than 21 years (73%). Mean score of students younger than 21 years was 38.1 ± 5.8 compared to students older than 21 years who had a mean score of 37.8 ± 4.8 . Orthorexia tendency was 71.8% among male students compared to female students who had 67.6%. No association between

Table 1: Socio demographic data of the medical students.

VARIABLE	n	&
AGE		
<21	232	75.80
>21	74	24.18
SEX		
MALE	170	55.5
FEMALE	136	44.4
YEAR OF STUDY		
2 YEAR	103	33.7
3 YEAR	105	34.3
4 YEAR	98	32
STAY		
DAY SCHOLAR	114	37.2
HOSTELLER	192	62.7
BMI		
UNDERWEIGHT	55	18
NORMAL	181	59.2
OVERWEIGHT	63	20.6
OBESE	7	2.3
ORTHO-15 SCORE		
< 40	214	69.9
>41	92	30.1

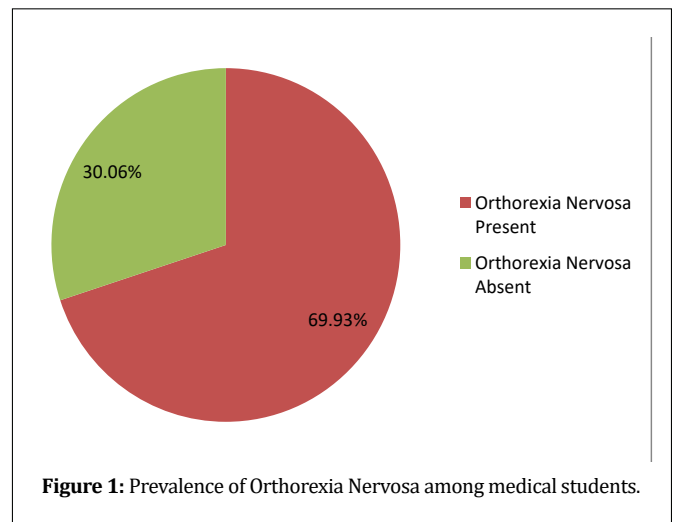


Figure 1: Prevalence of Orthorexia Nervosa among medical students.

age group, sex, year of study, place of stay (day scholar or hosteller), Body Mass Index (BMI) and Orthorexia Nervosa was found.

DISCUSSION

The study describes the prevalence of Orthorexia Nervosa tendency among undergraduate medical students. The prevalence was found to be 69.93% (95% CI 64.46 to 75.02%). The result showed that there was a high tendency of ON among medical students and it was also supported by some of the previous studies. A cross sectional study done among the resident medical doctors in Turkey showing that there was 45.5% of the resident medical doctors were found to be having ON [8]. In a study done among students at the University in Poland, the prevalence was high at 76% [9]. In a study done in Malaysia among medical students the prevalence was 66.83% [10]. In a study done by MOHD Ramadan Ab Hamid et al found 67.4% among Health science students. A prevalence of 72% was found among nutrition students in a study done by Mai Adnan Abdulla [11]. Around 76.6% of the students had an ORTHO-15 score indicating orthorexia nervosa, with a higher proportion in exercise science students than in business students (84.5% vs. 65.4%; $p = 0.002$) [12]. Some other studies found a low prevalence of Orthorexia Nervosa among students. In a study done among school age youth, the prevalence was low and found to be 27% [13]. In a study done by Anna Brytek – Matera et al the prevalence among Spanish and Polish University students was 2.3% and 2.9% respectively [14]. Many risk factors for Orthorexia Nervosa like Gender, age group, Year of study, place of stay, BMI were evaluated. Though none of them showed any significant association with tendency for Orthorexia Nervosa. In some studies male gender and BMI category showed higher association with tendency for ON [15]. In a study done by Anna Brytek *et al.*, no association was found between gender and ON [14]. Though females with ON had significant correlation with overweight preoccupation, appearance orientation, fitness orientation, health orientation, body areas satisfaction and appearance evaluation.

In a study done among nutritional students in Istanbul, Turkey, showed that ON tendency was higher in male students and those who were living with their parents [15]. In our study there was no significant difference between students who lived with their parents and those who lived in the hostel. In the same study age groups were found to be significantly associated with ON. the rate of the students younger than 21 years with orthorexia tendency was higher than the rate of the students older than 21 years with orthorexia tendency. Body Mass Index (BMI) itself does not seem to correlate with ON [16,17]; however, a higher BMI, along with eating problems and obsessive-compulsive-like behaviors, can be associated with higher orthorexic tendencies [18]. In a Meta-regression model of age \times gender \times BMI interaction revealed statistically significant results with a covariate coefficient of 0.001 and p value of 0.044 [19].

Table 2: Association of Orthorexia Nervosa and Socio-demographic factors.

Variables	ON Absent	ON Present	Chi-square	p value
Age Group				
< 21 Years	72 (31%)	160 (69%)	0.429	0.562
> 21 Years	20 (27%)	54(73%)		
Gender				
Male	48(28.2%)	122 (72.8%)	0.609	0.435
Female	44 (32.4%)	92 (67.6%)		
Year of study				
2 nd Year	29 (28.2%)	74 (71.8%)	4.129	0.127
3 rd Year	39 (37.1%)	66 (62.9%)		
4 th Year	24 (24.5%)	74 (75.5%)		
Type of stay				
Day scholar	35 (30.7%)	79 (69.3%)	0.035	0.852
Hosteller	57 (29.7%)	135 (70.3%)		
BMI Category				
Under weight	14 (25.5%)	41 (74.5%)	1.274	0.735
Normal Weight	54 (29.8%)	127 (70.2%)		
Over weight	22 (34.9%)	41 (65.1%)		
Obese	2 (28.6%)	5 (71.4%)		

p value < 0.05 was considered statistical significant

Table 3: Multi variate logistic regression of socio demographic factors and Orthorexia Nervosa.

Socio-demographic variable	OR	95% CI	p Value
Age group			
> 21		0.968 (0.493-1.900)	0.924
< 21	1 Reference		
Sex			
Female		0.814 (0.494- 1.341)	0.419
Male	1 Reference		
Year			
2	1 Reference	1.187 (0.587-2.402)	0.633
3			
4			
Type of stay			
Day scholar	1 Reference		
Hosteller		0.994 (0.586-1.688)	0.983
BMI			
Underweight	1 Reference		
Normal		0.868 (0.143 - 5.275)	0.878
Over weight			
Obese			

p value < 0.05 was considered statistical significant

Limitation: Our study was a cross sectional study. So temporal relationship between risk factors and ON could not be established. Another limitation of our study was the lack of a more detailed inquiry about eating attitude and practice.

Conclusion and Recommendation: Majority of the medical students have Orthorexia Nervosa tendency. This may be because of the higher educational background. Awareness on ON needs to be created among the student community and those in the health related fields. Students should be taught about healthy and balanced nutrition as part of their curriculum. Future studies should be done to find the risk factors and emotional factors related to Orthorexia Nervosa.

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Dr. Kamali. R -Data analysis and interpretation, Drafting the manuscript and reviewing

Dr. Ramasubramanian – Concept, Design, Manuscript Review, Final approval

Dr. Dhanalakshmi.S – Concept, Data analysis, review & Final approval

Shreyas Ravi – Definition of intellectual content, Manuscript preparation

Karishma Krishnakumar – Proposal Submission, Data acquisition, Data entry

Shivaraman P – Data acquisition, Data Entry, Literature search

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