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EFFECT OF BODY MASS INDEX ON PRIMARY DYSMENORRHEA IN PARUL UNIVERSITY FEMALE PHYSIOTHERAPY STUDENTS: A CORRELATIONAL STUDY

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ABSTRACT

Introduction

Primary Dysmenorrhea (PD) is defined as painful, spasmodic cramping in the lower abdomen, just before and/or during menstruation. Primary dysmenorrhea is the most prevalent menstrual problem in young females, which affects their daily activities and quality of life. Although some studies have demonstrated an association between BMI and the incidence and severity of dysmenorrhea, this relationship is still controversial.

Aims And Objective

To identify the association of body mass index on primary dysmenorrhea in Parul University female physiotherapy students.

Methodology

This correlational study was conducted on 200 female students (aged 18 to 25) of Parul institute of physiotherapy, Parul University, from March 2022 till September 2022. Subjects were classified into 4 groups equally according to the body mass index. The severity of dysmenorrhea was assessed using the WaLLID score.

Result

The study findings revealed that there were 94% mild severity, 75% moderate severity and 31% of students severely affected with primary dysmenorrhea. The statistical significance value is 0.153, in Spearman's correlation test performed on SPSS software, indicates that there is a very weak correlation between the BMI and Severity of Dysmenorrhea.

Conclusion

This study indicates a weak correlation between BMI and Primary Dysmenorrhea in college going girls.

Keywords: Primary Dysmenorrhea, Body Mass Index, WaLIDD score

INTRODUCTION:

Primary dysmenorrhea (PD)—defined as spasmodic and painful cramps in the lower abdomen that begin shortly before or at the onset of menses in the absence of any pelvic pathology—is one of the most common complaints in both young and adult females [1]. There are two types of dysmenorrhea: primary dysmenorrhea, which is caused by excessive prostaglandin secretion without an organic uterine disease, and secondary dysmenorrhea, which is caused by an organic disease of the uterus [2]. Primary dysmenorrhoea (PD) is the most common gynaecological problem among menstruating young adults and adolescents (PD) [3].

The prevalence of PD estimates ranges from 25 to 90% among women of reproductive age [4]. Studies from India reported the prevalence range between 50 to 87.8% [5]. Moreover, dysmenorrhea is a severe problem in young women because it negatively impacts their lives; PD is an important health problem concerning public health, occupational health and family practice, as it affects both the quality of life

and the national economy due to short-term school/college absenteeism [6, 7].

Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2) [8].

For adults, BMI values indicate the following:

- BMI <17.0: thinness
- BMI <18.5: underweight
- BMI 18.5-24.9: normal weight
- BMI \geq 25.0: overweight
- BMI \geq 30.0: obesity.

The difference in body mass index had an effect on primary dysmenorrhea; both obese and underweight subjects suffer from primary dysmenorrhea more than subjects with normal weight and overweight [9].

Menstrual pain can be measured by the WaLIDD score, which consists of Working ability, location, intensity, and day of pain [10]. The reliability and validity of the WaLIDD Score was already checked and

found to be excellent by test– retest technique (Cronbach’s alpha of 0.722) [11]. There are various reports regarding the impact of Body Mass Index (BMI) on dysmenorrhea. As several studies have indicated, various physiological, cultural and psychological factors are involved in dysmenorrhea. Although some studies have demonstrated an association between BMI and the incidence and severity of dysmenorrhea, this relationship is still controversial [9].

As the existing data is inconclusive and insufficient to demonstrate the effects of BMI on dysmenorrhea, so the present study was designed to fill this gap. The results of the present study may help us to provide a better insight into the association of dysmenorrhea and BMI.

METHODOLOGY

Subjects: The sample size was calculated using G*power (version 3.1). A total of 200 participants were included in the study, aged 18 to 25 years. They were selected from Parul institute of physiotherapy, Parul university. This correlation study was of 6 months from March 2022 till September 2022. Inclusion Criteria is age from 18 to 25 years and menstruating girls. Exclusion criteria includes any chronic illness, secondary dysmenorrhea, any pelvic pathology and usage of any medications (including hormonal contraception) for at least 2 months.

Materials required for the study was weighing machine, stature meter and mobile phones. All patients were given full explanation of the study procedures, and signed informed consents were obtained before participation. This study was approved by the Ethics Committee for Scientific Research of the Faculty of Physical Therapy, Parul University. The history of subjects was taken to exclude secondary dysmenorrhea, pelvic pathology and any hormonal contraception which may affect the study.

Method:

Weight and height were measured on the health weight and height scale. Then, Body Mass Index (BMI) was calculated through the following equation: $BMI = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m}^2\text{)}}$. Subjects were classified into 4 groups (A, B, C & D) according to their BMI as UW (BMI < 18.5), normal weight (18.5–≤24.99), OW (BMI ≥25–≤29.99), OB ≥ 30.

A briefing of half an hour was given to the students for the explanation of the WaLIDD Score. A scale-type survey (working ability, location, intensity, days of pain, dysmenorrhea [WaLIDD] score) was designed, which integrated features of dysmenorrhea such as: 1) number of anatomical pain locations (no part of the body, lower abdomen, lumbar region, lower limbs, inguinal region), 2) Wong–Baker pain range (does not hurt, hurts a little, hurts a

little more, hurts even more, hurts a lot, hurts a lot more), 3) number of days of pain during menstruation (0, 1–2, 3–4, ≥ 5), and 4) frequency of disabling pain to perform their activities (never, almost never, almost always, always). Each tool's variable provided a specific score between 0 and 3, and the final score ranged from 0 to 12 points [12].

Scoring of WaLIDD are such as 0 without dysmenorrhea, 1-4 mild dysmenorrhea, 5-7 moderate dysmenorrhea, 8-12 severe dysmenorrhea [13].

DATA ANALYSIS PROCEDURE

Data were analysed by using IBM SPSS 27. The data did not follow the normality and hence, non-parametric test measures were

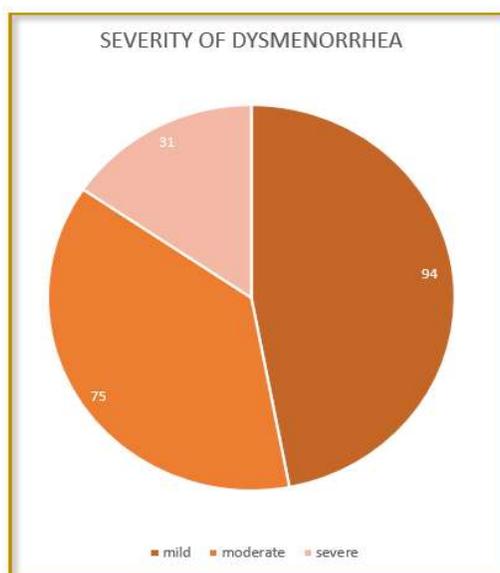
used to find the correlation Spearman's correlation test performed on the software to find the correlation between the BMI and Severity of Dysmenorrhea. The statistical significance value is 0.153.

RESULTS

200 subjects were included in the study out of which 94 (47%) had mild, 75 (37.5%) had moderate, whereas 31 (15.5%) had severe dysmenorrhea (Table 1, Graph 1).

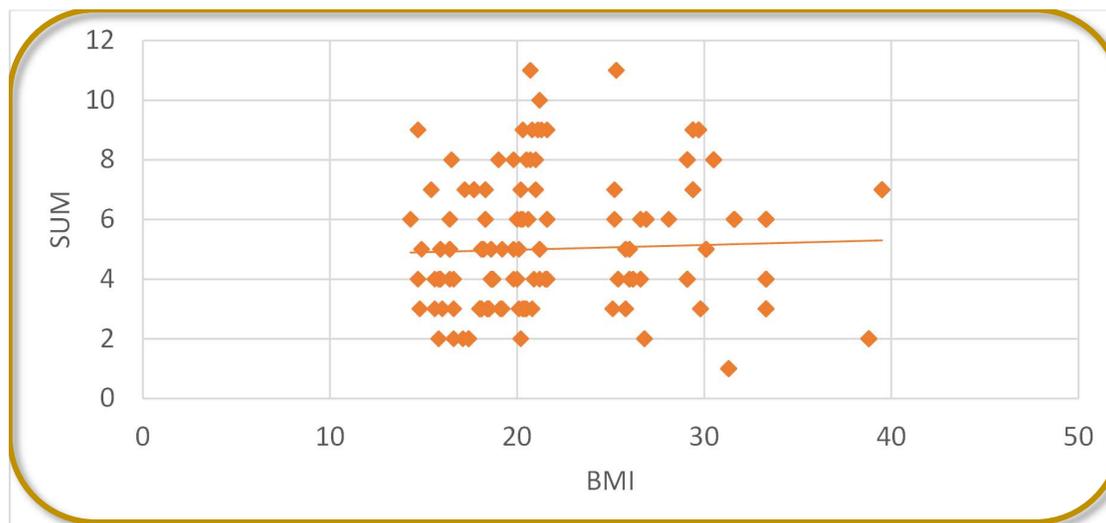
Spearman rho's correlation coefficient was calculated between BMI and WaLIDD score. The Spearman rho correlation coefficient was 0.153. This indicated that there is a weak positive correlation between BMI and WaLIDD score (Table 2, Graph 2).

WaLIDD SORE	NO. OF STUDENTS
Mild	94
Moderate	75
Severe	31



Graph 1: Demonstrates the severity of dysmenorrhea

		BMI	SUM
Spearman's rho	BMI	Correlation Coefficient	1.000
		Sig. (2-tailed)	0.153
		N	200
	SUM	Correlation Coefficient	0.101
		Sig. (2-tailed)	0.153
		N	200



Graph 2: Indicates the correlation of BMI on Severity of primary Dysmenorrhea

DISCUSSION

Primary dysmenorrhea is one of the most frequent gynaecological diseases, manifested by spasmodic cramping in the lower abdomen during menstrual period without any organic pelvic lesions. Various studies reflect that Body Mass Index (BMI) can affect PD. But the data regarding the effects of BMI on PD is still controversial. So this study was carried out to investigate the effect of Body Mass Index (BMI) on primary dysmenorrhea.

The study findings revealed that there was a weak correlation of BMI on primary dysmenorrhea.

Soheir M. El-Kosery, Ph.D, *et al* [9] stated that the difference in body mass index had an effect on primary dysmenorrhea; both obese and underweight subjects suffer from primary dysmenorrhea more than subjects with normal weight and overweight.

Lim, Eun-Mee suggested that this study showed the significant effect of menstruation and dysmenorrhea on obesity indices and physical activity [14].

Gujral T. Concluded that no association was found between severity of dysmenorrhea and BMI [15].

Donayeva A. concluded that The visual analogue scale of dysmenorrhea was statistically higher in the underweight

adolescent group compared to normal-weight, and overweight adolescent groups, and there was a strong negative relation between the VAS and BMI in the underweight adolescent group. In addition, the VAS of dysmenorrhea was statistically higher when the obese adolescent group was compared with the overweight, normal-weight and underweight adolescent groups, and there was a moderate positive relation between the VAS and BMI in the obese adolescent group [16].

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