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Research Article

A STUDY TO ASSESS THE RELATIONSHIP BETWEEN BODY MASS INDEX (BMI) AND MENSTRUAL IRREGULARITIES AMONG ADOLESCENT GIRLS AT SELECTED NURSING COLLEGES, PUDUCHERRY

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ABSTRACT

Menstrual irregularities is the one of the common problem among adolescent girls. Particularly girls in their teens or early twenties. Over weight, lifestyle patterns, eating habits and body mass index are related to the cause for the number of cases with menstrual irregularities. The present study was conducted among the adolescent girls to assess the relationship between the body mass index and menstrual irregularities at SMVNC at puducherry. A quantitative research approach with descriptive research design was selected for this study. The study samples was selected by quota sampling which comprises of 75 adolescent girls from 1st year B.sc nursing to 4th year B.sc nursing. The menstrual irregularities were assessed among the adolescent girls and their body mass index was calculated. The findings of the present study reveals that there is a relationship between the body mass index and menstrual Irregularities among the adolescent girls.

INTRODUCTION

Most of the adolescent girls come across menstrual abnormalities which includes dysmenorrhoea, lower abdominal and back cramping pain, abnormal weight gain etc. Dysmenorrhoea or painful menstruation occurs at or a day before the onset of menstruation and disappears by the end of menses. Body Mass Index indicates the health status of the individual. Body Mass Index (BMI) higher than 30kg that is considered as obese. Due to life style changes and dietary patterns there is a variation in the health status of adolescent girls leading to the hormonal changes and thus causing menstrual irregularities.

Need for the study

Obese individuals often experience disruption of the menstrual cycle, including interruption of the menstrual cycle, abnormal menstrual flow and increased pain associated with menstrual cycle. A recent review of menstrual disorders in developing countries in journal revealed high rates of menstrual morbidity in population-based studies. By late adolescence, 75% of girls experience some problem associated with menstruation.

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In US survey, the prevalence of menstrual irregularities in obese women has been reported to range between 8% and 18%. A dysmenorrhea incidence of 33.5% was reported by Nag (1982), among adolescent girls in India. dysmenorrhoea (87.87%) is a common problem in India. A Study conducted in Chennai showed that the prevalence of reproductive morbidities was very high among the study group; about 82 % of girls reported having had at least one reproductive health problem during the survey

Objectives

- To assess the body mass index among adolescents girls.
- To assess the menstrual irregularities among adolescents girls.
- To assess the relationship between menstrual irregularities and body mass index among adolescents girls.
- To associate the relationship between body mass index and menstrual irregularities among adolescents girls with their selected demographic variables.

Assumptions

- Adolescence girls will have increased menstrual irregularities.
- Abnormal BMI affects menstruation among adolescence girls

Table 1. Frequency and percentage distribution of demographic variables of adolescent girls

N=260

S : No	Demographic variables	Frequency (n)	Percentage (%)
1.	Age		
	a) 16-18 yrs	16	26.7%
	b) 19-21 yrs	175	67.3%
	c) 22-24yrs	23	38.3%
	d) Above 24	0	0.0%
2.	Which year you are studying ?		
	a) B.Sc I year	64	24.6%
	b) B.Sc II year	65	25%
	c) B.Sc III year	59	22.7%
	d) B.Sc IV year	72	27.7%
3.	RELIGION		
	a) Hindu	240	92.3%
	b) Christian	17	26.7
	c) Muslim	3	8.3
	d) Other	0	0
4.	Residential area		
	a) Rural	135	51.9
	b) Urban	125	48.1
5.	INCOME		
	a) <RS 4000	35	13.5
	b) RS 4000 - RS 6000	55	21.2
	c) RS 6000 - RS 8000	66	25.4
	d) Above RS 8000	104	39.9
6.	DIETARY PATTERN		
	a) Vegetarian	17	6.5
	b) Non vegetarian	23	8.8
	c) Both	220	84.6
7.	JUNK FOODS		
	a) Yes	188	72.3
	b) No	72	27.7
8.	INTAKE OF FOODS		
	a) 3 times	217	83.5
	b) 4 times	36	13.8
	c) 5 times	7	2.7
9.	MEDICAL ILLNESS		
	a) Appendicitis	3	1.2
	b) Asthma	2	0.8
	c) Fungal Infection	1	0.4
	d) Hyperthyroidism	1	0.4
	e) Hypothyroidism	1	0.4
	f) PCOD	5	1.9
	g) Peptic Ulcer	1	0.4
	h) Testosterone Level	1	0.4
	i) Tonsillitis	2	0.8
	j) Ulcer	1	0.4
	k) Wheezing	2	0.8
	l) No	239	91.9

Table 2. Frequency and percentage distribution of body mass index among adolescent girls

N=260

BMI	Frequency (n)	Percentage (%)
<18.5 Underweight	85	32.7
18.5-24.9 Normal	128	49.2
25-29.9 Over weight	34	13.1
30-34 Obese class I	11	4.2
35-39.9 Obese class II	2	.8
above 40 Obese class III	0	0
Total	260	100.0

Table 3. Frequency and percentage distribution of menstrual irregularities among adolescent girls

N=260

Menstrual irregularities	Frequency (n)	Percentage (%)
NORMAL	121	46.5
MILD	106	40.8
MODERATE	33	12.7
Total	260	100.0

Table 4. Frequency and percentage wise comparison and cross Tabulation of Body Mass Index and menstrual irregularities among adolescent girls

Body mass index	Menstrual score						Total	
	Normal		Mild		Moderate			
	n	%	N	%	N	%	n	%
<18.5 Underweight	33	27.3	38	35.8	14	42.4	85	32.7
18.5-24.9 normal	70	57.9	43	40.6	15	45.5	128	49.2
25-29.9 over weight	13	10.7	19	17.9	2	6.1	34	13.1
30-34 obese class I	5	4.1	5	4.7	1	3.0	11	4.2
35-39.9 obese class Ii	0	0	1	0.9	1	3	2	0.8
Total	121	100	106	100	33	100	260	100

Table 5. Frequency, Percentage distribution, chi square value, p value of body mass index among adolescent girls in SMVNC with selected demographic variables

N=260

Demographic Variables		Body mass index						Chi square value	P value
		<18.5 Under weight	18.5-24.9 Normal	25-29.9 Over weight	30-34 Obese class I	35-39.9 Obese class II	Obese class III		
		N	N	N	N	N	N		
Age	16-18	26	39	8	5	1	0	3.404	0.906
	19-21	56	87	25	6	1	0		
	22-24	3	2	1	0	0	0		
	Above 24	0	0	0	0	0	0		
Year	B.Sc I year	22	28	7	6	1	0	12.905	0.376
	B.Sc II year	27	27	9	1	1	0		
	B.Sc III year	16	33	8	2	0	0		
	B.Sc IV year	20	40	10	2	0	0		
Religion	Hindu	82	117	31	9	1	0	13.312	0.102
	Christian	3	8	3	2	1	0		
	Muslim	0	3	0	0	0	0		
	Other	0	0	0	0	0	0		
Residential area	Rural	51	62	15	6	1	0	3.707	0.447
	Urban	34	66	19	5	1	0		
Income	<RS 4000	9	20	6	0	0	0	11.567	0.481
	RS 4000 - RS 6000	24	25	6	0	0	0		
	RS 6000 - RS 8000	19	33	8	5	1	0		
	Above rs 8000	33	50	14	6	1	0		
Dietary pattern	Vegetarian	9	7	0	1	0	0	6.657	0.574
	Non vegetetarian	7	12	4	0	0	0		
	Both	69	109	30	10	2	0		
Junk foods	Yes	60	92	29	5	2	0	7.728	0.102
	No	25	36	5	6	0	0		
Intake of foods	3 times	68	108	30	11	0	0	20.525*	0.009
	4 times	12	19	3	0	2	0		
	5 times	5	1	1	0	0	0		
Medical illness	No	80	116	31	11	1	0		
	Yes	5	12	3	0	1	0	6.568	0.161

Table 5.1. Frequency, Percentage distribution, chi square value, p value of association between body mass index among adolescent girls in SMVNC with intake of food

Demographic Variables		Body mass index						Chi square value	P value
		<18.5 Under Weight	18.5-24.9 normal	25-29.9 Over weight	30-34 Obese class I	35-39.9 obese class II	Obese class III		
		N	N	N	N	N	N		
Intake of foods	3 times	68	108	30	11	0	0	20.525*	0.009
	4 times	12	19	3	0	2	0		
	5 times	5	1	1	0	0	0		

Table 6. Frequency, Percentage distribution, chi square value of Menstrual irregularities among adolescent girls in SMVNC with selected demographic variables

N=260

Demographic Variables		Menstrual irregularities				Chi square value	P value
		Normal	Mild	Moderate	Severe		
		N	N	N	N		
Age	16-18	35	33	11	0	1.571	0.814
	19-21	82	71	22	0		
	22-24	4	2	0	0		
	ABOVE 24	0	0	0	0		
Year	B.Sc I Year	31	23	10	0	17.842*	0.007
	B.Sc II year	21	32	12	0		
	B.Sc III year	38	15	6	0		
	B.Sc IV year	31	36	5	0		
Religion	Hindu	112	99	29	0	3.998	0.406
	Christian	9	5	3	0		
	Muslim	0	2	1	0		
	Other	0	0	0	0		
Residential area	Rural	62	51	22	0	3.513	0.173
	Urban	59	55	11	0		
Income	<RS 4000	19	14	2	0	3.208	0.782
	RS 4000 - RS 6000	28	21	6	0		
	RS 6000 - RS 8000	29	27	10	0		
	Above RS 8000	45	44	15	0		
Dietary pattern	Vegetarian	6	11	0	0	6.294	0.178
	Non vegetetarian	13	7	3	0		
	Both	102	88	30	0		
Junk foods	Yes	82	80	26	0	2.467	0.291
	No	39	26	7	0		
Intake of foods	3 times	105	85	27	0	3.332	0.504
	4 times	13	17	6	0		
	5 times	3	4	0	0		
Medical illness	No	116	95	28	0	5.516	0.063
	Yes	5	11	5	0		

Table 6.1. Frequency, Percentage distribution, chi square value, p value of association between body mass index among adolescent girls in SMVNC with year of education

Demographic Variables		Menstrual irregularities				Chi square value	P value
		Normal	Mild	Moderate	Severe		
		N	N	N	N		
Year	B.Sc I Year	31	23	10	0	17.842*	0.007
	B.Sc II Year	21	32	12	0		
	B.Sc III Year	38	15	6	0		
	B.Sc IV Year	31	36	5	0		

MATERIALS AND METHODS

A quantitative research approach with descriptive research design was selected for this study. The study samples was selected by quota sampling which comprises of 75 adolescent girls from 1st year B.sc nursing to 4th year B.sc nursing at SMVNC, Puducherry. The menstrual Irregularities were assessed among the adolescent girls with the prepared checklist and their body mass index was calculated using the formula:

$$BMI = \frac{\text{Weight in kg}}{(\text{Height in meter})^2}$$

Inclusion criteria

- Adolescence those who attained puberty.
- Both obese and lean adolescent girls.
- Students who are willing to participate in the study.

Exclusion criteria

- Adolescents girls with any physical illness
- Students who are not available at the time of data collections

Description of the tool

Section A: Socio-demographic variables

Section B: Body Mass index Formula
Section C: Self prepared checklist for the assessment of menstrual irregularities among adolescence girls.

RESULTS

Regarding the BMI among adolescent girls the data findings shows that (32.70%) were under weight, (49.20%) were normal weight, (13.10%) were overweight, (4.20%) were obese class I, (0.80%) were obese class II, (0%) were obese class III. Regarding the menstrual irregularities among adolescent girls the data findings shows that (46.5%) adolescent girls had normal menstrual flow, whereas (40.8%) adolescent girls had mild menstrual irregularities, (12.7%) adolescent girls had moderate menstrual irregularities and (0%) had severe menstrual irregularities. 49.2% (128) of menstrual irregularities were found among adolescent girls who had their BMI 18.5-24.9

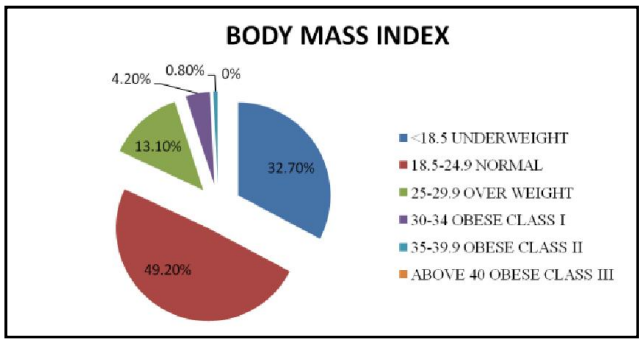

Figure 2. Percentage distribution of the body mass index among adolescent girls

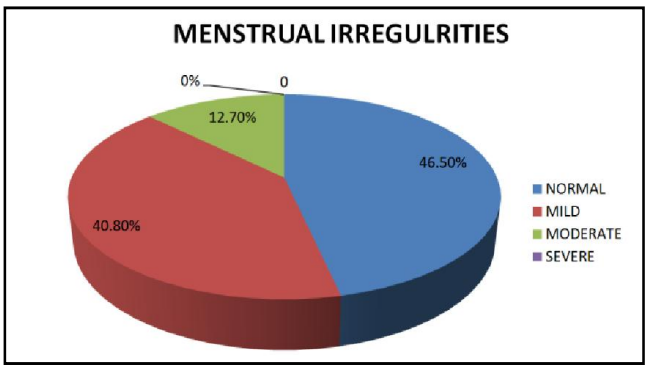

Figure 3. Percentage distribution of menstrual irregularities among adolescent girls

Conclusions

Therefore, the finding of the study revealed that (32.70%) were under weight, (49.20%) were normal weight, (13.10%) were overweight, (4.20%) were obese class I, (0.80%)were obese class II, (0%) were obese class III. (46.5%) adolescent girls had normal menstrual flow, whereas (40.8%) adolescent girls had mild menstrual irregularities, (12.7%) adolescent girls had moderate menstrual irregularities and (0%) had severe menstrual irregularities. participants gets benefited by participating in this study through the early identification of problems and correct measures to overcome this problems.

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