International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Chennuru R et al. Int J Reprod Contracept Obstet Gynecol. 2019 Jul;8(7):2861-2866
www.ijrcog.org

pISSN 2320-1770 | eISSN 2320-1789

DOI: http://dx.doi.org/10.18203/2320-1770.ijrcog20193056

Original Research Article

Gynecological problems and reproductive health awareness amongst late adolescent girls pursuing professional courses: a questionnaire based survey

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Received: 11 June 2019
Accepted: 17 June 2019

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ABSTRACT

Background: Dysmenorrhoeais a debilitating menstrual problem and may be related to body mass index (BMI). This study was done to explore the various gynecological problems in girls in their late adolescence that is pursuing professional courses in medicine, dental and nursing.
Methods: This was a prospective, questionnaire based study conducted between January and February 2019 in a medical college in Visakhapatnam, India. The survey included female undergraduate students of the Medical, Dental and Nursing colleges to find out their menstrual history and reproductive awareness with the help of a self-structured questionnaire. Participants were categorized based on BMI. Data was reported as number and percentage.
Results: Of the 190 participants, 154 participants (age range; 16-19 years) were included in the study. Fifty percent of the total participants reported to have dysmenorrhoea, of which 21% reported severe dysmenorrhoea. A very high % of participants in the obese category (77.8%) reported severe dysmenorrhoea, followed by 27.3% in the underweight category. A U-shaped relationship between percentage of participants with severe dysmenorrhoea and increasing BMI was observed. A fair percentage of obese participants reported for infrequent periods beyond 35-45 days and androgenic features like excess hair, acne and dark pigmentation around neck, suggestive of polycystic ovarian syndrome (PCOS). The participants possessed a high level of awareness and reported in the range of 87.1 to 96.8% related to reproductive health.
Conclusions: Despite high level of awareness among the participants we observed a considerably high prevalence of dysmenorrhoea which was even more prevalent, in the obese category.

Keywords: Adolescents, Body mass index, Dysmenorrhoea, Menstrual problem, Obesity

INTRODUCTION

Population aged between 10 to 19 years are categorized as adolescents.[1] Adolescence is the phase of transformation from puberty to adulthood, hallmarked by physical, physiological and psychological development among the adolescents.[2] Globally, there are more than 1.2 billion adolescents.[1,3] Adolescents constitutes of 22% of the Indian population accounting to about 253 million in the year 2014.[4,5] Menstrual problems like dysmenorrhoea, characterized by unbearable pain in the lower abdomen and cramping in the thighs, occurring just before or during the menses, are common health problems of adolescents.[2,6] It is a debilitating condition impacting negatively the quality of life of women at their most productive stage of life leading to considerable loss of

work and absences in school.[7,8] In addition to this, many adolescents with menstrual problems do not present this to health care physicians or gynecologists, which may further lead to any other related disease or decrease productivity.[2] Till date, very heterogeneous data for the prevalence of dysmenorrhoea ranging from 28% to 93% is present in the literature obtained from various studies.[9,10] Pertaining to the risk factors, body mass index (BMI) has been shown to have a definite relationship with dysmenorrhoea. However, diverse results have been obtained on the relationship of dysmenorrhoea with BMI. A Cross-sectional study of 200 urban and 200 rural school going adolescent girls, revealed a direct relation of dysmenorrhoea with underweight women.[11] Another, study showed a higher risk of dysmenorrhoea for both underweight and obese women.[6] In view of the above, there is a need to explore the prevalence of menstrual problems like dysmenorrhoea and irregular menses among adolescents and related factors like BMI. Thus, this survey was conducted in an attempt to explore the various gynecological problems in girls in their late adolescence (16+ to19 completed years) pursuing professional courses in medicine, nursing and dental streams to study various gynecological problems in late adolescents and relation of these problems in the context of BMI. Additionally, the survey also explored the awareness for pubertal changes, contraception, menstrual hygiene and sexually transmitted diseases among the students.

METHODS

This study was a prospective, questionnaire based survey conducted between January and February 2019 in an Institute of Medical Sciences, Visakhapatnam, India. The study was approved by the Institutional Ethics Committee. The study was conducted according to the principles of Declaration of Helsinki and guidelines for good clinical practices. An informed consent was obtained from the participants prior to the participation in the survey.

Late adolescent girls (16-19 years) perusing health professional courses (Medical, Nursing and Dental) constituted the study population. A survey was conducted among them to ascertain their dietary habits, physical exercise, menstrual history, and reproductive awareness with the help of a self-structured questionnaire. The questionnaire was distributed among the students and instructed to fill all the columns and drop in a specified collection box. Identity of the participants were not mentioned anywhere in questionnaire to assure privacy. The filled-up forms were collected after two days from the collection box by two different researchers.

Inclusion criteria

- Late adolescent (16-19 years) age group girls
- Those who has given the consent for participation
- Those who have provided completely filled up questionnaire.

Exclusion criteria

- Incomplete forms
- Missing informed consent
- Age >20 years.

All data were collected with the help of the structured questionnaire distributed among the students. The main exposure of interest was BMI which was calculated as weight in kg divided by the square of height in meter. Participants were categorized based on BMI in kg/m^2 as underweight (<18.5), normal (18.5-24.99), overweight (25-29.99) or obese (≥30) based on the recommendations from the World Health Organization.[12]

Statistical analysis

Data was reported as number and percentage. Statistical analysis of data was done by using total number of participants and percentages with the help Microsoft excel spreadsheet.

RESULTS

Baseline characteristics

Of the 190 participants participating in the survey, 154 participants (Mean age (Years) ±Standard deviation, 19.1±0.8) were finally included in the study. All participants were categorized based on BMI. Highest numbers of participants were under normal BMI category accounting for 56.5% of the total study population, followed by 21% under the underweight category, 16% under the overweight category and 6% under the obese category (Table 1).

Table 1: Baseline characteristics.

	Participants (N=154)
Age (years) Mean (SD)	19.1 (0.8)
BMI, n (%)	
Underweight (<18.5)	33 (21.4)
Normal (18.5 to <25)	87 (56.5)
Overweight (25.0 to <30)	25 (16.2)
Obese (30.0 or higher)	9 (5.8)

In the dietary habits, 42 (27.3%) participants reported consuming high amount of junk food including burger, pizza, potato chips and soft drinks; however, more than double number of participants, 112 (72.7%) reported for normal food intake. For physical activity, 40.3% reported for no physical activity, 22.1% and 37.7% reported for intermittent physical activity and regular physical activity, respectively (Table 2).

Table 2: Dietary habits and physical activity.

Parameters	Underweight, n (%)	Normal, n (%)	Overweight, n (%)	Obese, n (%)
Junk food				
Yes	10 (30.3)	14 (16.1)	12 (48.0)	6 (66.7)
No	23 (69.7)	73 (83.9)	13 (52.0)	3 (33.3)
Physical activity				
No	19 (57.6)	30 (34.5)	9 (36.0)	4 (44.4)
Occasionally	2 (6.1)	23 (26.4)	6 (24.0)	3 (33.3)
Regular	12 (36.4)	34 (39.1)	10 (40.0)	2 (22.2)

Table 3: Menstrual patterns among participants.

Parameters	Underweight, n (%)	Normal, n (%)	Overweight, n (%)	Obese, n (%)
Frequency of periods				
Once in <21 days	15 (45.5)	18 (20.7)	6 (24.0)	1 (11.1)
21-35 days	17 (51.5)	62 (71.3)	17 (68.0)	7 (77.8)
Infrequent (delayed) periods> 35-45 days	1 (3.0)	7 (8.0)	2 (8.0)	1 (11.1)
Duration of menstrual bleeding				
1-3 days	16 (48.5)	41 (47.1)	12 (48.0)	1 (11.1)
4-7 days	17 (51.5)	45 (51.7)	13 (52.0)	7 (77.8)
>7 days	0	1 (1.2)	0	1 (11.1)
Number of pads changed				
< 3pads/day	27 (81.8)	46 (52.9)	22 (88.0)	5 (55.6)
4-5pads/day	5 (15.2)	30 (34.5)	2 (8.0)	4 (44.4)
>6 pads /day	1 (3.0)	8 (9.2)	1 (4.0)	0
Passing of blood clots				
No clots	15 (45.5)	53 (60.9)	14 (56.0)	2 (22.2)
Few clots	18 (54.5)	32(36.8)	9 (36.0)	5 (55.6)
Excess clots	0	2 (2.3)	2 (8.0)	2 (22.2)
Pain (Dysmenorrhea)				
No pain	11 (3.3)	59 (67.8)	6 (24.0)	1 (11.1)
Bearable pain (moderate)	13 (39.4)	17 (19.5)	13 (52.0)	1 (11.1)
Unbearable pain (Severe)	9 (27.3)	11 (12.6)	6 (24.0)	7 (77.8)
White discharge (Vaginal)				
Yes	9 (27.3)	26 (29.9)	22 (88.0)	7 (77.8)
No	24 (73.7)	61 (70.1)	3 (12.0)	2 (22.2)
Itching				
Yes	5 (15.2)	12 (13.8)	11 (44.0)	4 (44.4)
No	28 (84.8)	75 (86.2)	14 (56.0)	5 (55.6)
Foul Smell				
Yes	8 (24.2)	18 (20.7)	18 (72.0)	6 (66.7)
No	25 (75.8)	69 (79.3)	7 (28.0)	3 (33.3)
Staining of undergarments				
Yes	12 (36.4)	8 (9.2)	3 (12.0)	2 (22.2)
No	21 (63.6)	79 (90.8)	22 (88.0)	7 (77.8)

Menstrual pattern among the students

In order to analyze the menstrual pattern among the students we included various questions in the survey questionnaire like duration of Periods, duration of menstrual bleeding, number of pads changed, passing of blood clots, pain and intensity of pain (bearable/unbearable), vaginal white discharge, foul smell and staining of undergarments. Table 3, shows the percentage of participants in each BMI category. Of the total 154, 40 (26.0%), 103 (66.9%) and 11 (7.1%) participants reported having periods once in <21days, having periods between 21-35 days and having infrequent

beyond 35-45 days, respectively. In addition to this, a fair percentage of obese participants compared to other BMI category, reported infrequent periods beyond 35-45 days. For, the duration of menstrual bleeding, 70 (45.5%) and 82 (53.2%) participants reported 1-3 days and 4-7 days of menstrual flow, respectively. Only 2 (1.3%) participants reported an extended menstrual flow for more than 7 days. No blood clots were reported by 84 (54.5%) participants during the menstrual flow, while 64 (41.6%) and 6 (3.9%) participants reported few blood clots and excess of blood clots during menstrual flow. Seventy seven (50.0%) of the total participants reported to have pain during menstrual flow (dysmenorrhoea), and 33 (21.4%) reported unbearable pain (Severe) and 44 (28.6%) bearable pain (moderate), while 77 (50.0%) reported no pain associated during menses. Vaginal white discharge, itching, foul smell and staining of undergarments were reported by 64 (41.6%); 32 (20.8%); 50 (32.5%) and 25 (16.2%), respectively. While, 90 (58.4%); 122 (79.2%); 104 (67.5%) and 129 (83.8%); did not report for vaginal white discharge, itching, foul smell and staining of undergarments, respectively.

Table 4: Androgenic features.

Parameters	Underweight, n (%)	Normal, n (%)	Overweight, n (%)	Obese, n (%)
Excess hair growth on face or abdomen				
Yes	0 (0.0)	3 (3.5)	1 (4.0)	1 (11.1)
No	33 (100.0)	84 (96.5)	24 (96.0)	8 (88.9)
Excess Acne (pimples)				
Yes	5 (15.2)	5 (5.7)	4 (16.0)	3 (33.3)
No	28 (84.8)	82 (94.3)	21 (84.0)	6 (66.7)
Dark pigmentation on neck				
Yes	0 (0.0)	8 (9.2)	2 (8.0)	1 (11.1)
No	33 (100.0)	79 (90.8)	23 (92.0)	8 (88.9)

In order to establish a relation between BMI and dysmenorrheal we compared the number of participants in each BMI category in the unbearable pain (severe) criteria. Considerably higher percentage of participants in the obese category (77.8%) was observed compared to 27.3% in the underweight category, followed by 24.0% in the overweight category and only 12.6% in the normal category. Figure 1, depicts the U-shaped relation between percentage of participants with unbearable pain and increasing BMI.

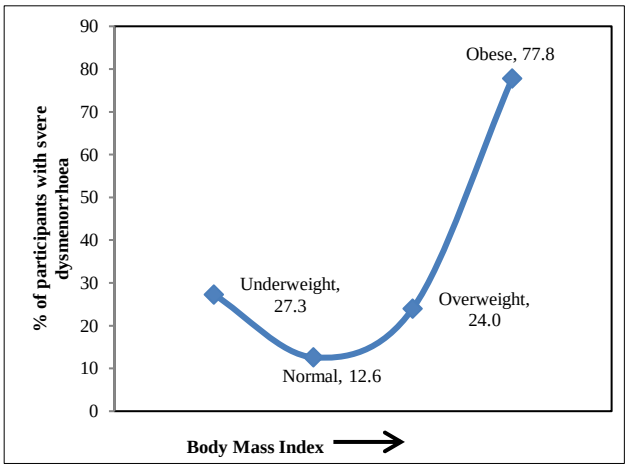

Figure 1: U- Shaped relation between percentage of participants with severe dysmenorrhoea during menses and increasing BMI.

Androgenic features like excess hair growth (Hirsutism), excess acne and dark pigmentation associated with adolescents are shown in Table 4.A fair percentage of participants, in the obese group reported for androgenic features as compared to other BMI groups (underweight, normal and overweight).

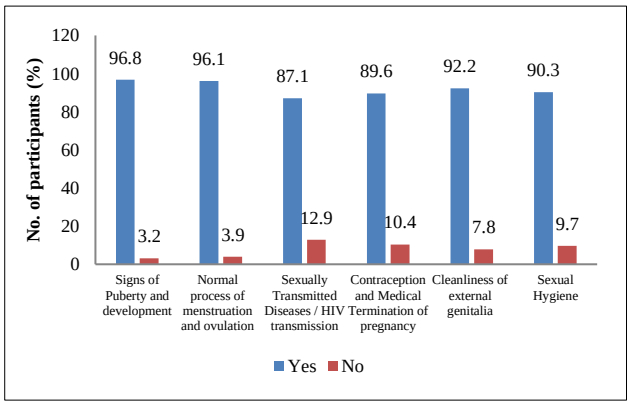

Figure 2: Awareness for reproductive health.

Awareness for reproductive health among the adolescents

To survey the awareness for reproductive health among the adolescents we included questions related puberty and development, process of menstruation and ovulation, sexually transmitted diseases, contraception and medical termination of pregnancy, cleanliness of external

genitalia and sexual hygiene. The participants possessed a high level of awareness and reported in the range of 87.1% to 96.8 related to reproductive health (Figure 2).

DISCUSSION

Dysmenorrhoea is a common menstrual problem, influencing women of reproductive age with 2 to 30% complaining of severe pain.[13] In the present study, we observed a high prevalence of moderate to severe dysmenorrhoea. Several studies reported a very high prevalence of 79% to 26.5% and 3 to 5% for dysmenorrhoea and severe dysmenorrhoea, respectively.[9-11] In line with these studies we observed the prevalence of dysmenorrhoea within this range. However, considerably higher percentage of severe dysmenorrhoea was observed in our study compared to the earlier studies. Small sample size and over reporting may be one of the probable reasons in context to this fact, since it was a self reporting questionnaire based study.

A very high prevalence of dysmenorrhoea was observed in the obese category, followed by the underweight category. While drawing the correlation of BMI with dysmenorrhoea, we obtained a U-shaped relation with the number of participants and increasing BMI, Figure 1. This implies that dysmenorrhoea has probable relation with underweight and obesity, since the number of participants in both these group were higher compared to the normal and overweight groups. A longitudinal study reported a 25% prevalence of dysmenorrhoea and a U-shaped association between dysmenorrhoea and BMI, revealing a higher risk of dysmenorrhoea for both underweight and obese women.[6] Thus, our observation is in line with this study; however the prevalence for dysmenorrhoea reported in this study does not completely match with our reporting.

Our study mainly focused on the BMI and its correlation with dysmenorrhoea. Additionally, we included other parameters like frequency of periods, duration of periods and menstrual bleeding, passing of clots, white discharge, itching, foul smell, number of pads changed and undergarment staining and androgenic features. We observed 1/3rd and approximately half of the participants reported for abnormal frequency of menstrual periods and duration menstrual bleeding, indicating a considerably high prevalence menstrual disorder among the participants. While, large percentage of participants also, reported for white vaginal discharge, itching, foul smell and blood clots. Equivalent percentage of patients reported for < 3 pads/day and 4-5 pads/day for number of pads changed and small number of participants reported for staining of undergarments during menses. A cross-sectional survey, reported a prevalence of menstrual disorders like irregularity, prolonged menstrual bleeding, and heavy menstrual bleeding were 7.47%, 10.28% and 23.36%; respectively.[10] Other studies analyzing the variations in the menstrual characteristics in adolescents revealed that more than half of the study population reported a one or the other menstrual problem, like irregularity in the cycle, skipping of the cycle, long duration of menstrual discharge, white discharge and blood clots.[14,15] Thus, in line with the earlier studies we also observed a high prevalence of the menstrual problem warranting a campaign among the adolescents to increase awareness for the reproductive health.

In the present study, we also observed significant percentage of obese participants reporting for infrequent periods and androgenic features suggestive of PCOS. A prevalence study on adolescents with confirmed diagnosed PCOS reported higher odds of PCOS among the overweight and obese patients.[16] Ours is only a survey and not confirmed diagnosis hence, it may be either underreported or over reported by participants. However, it may be predicted that obesity is directly related with PCOS among adolescents.

In our study we included questions to analyze the awareness for reproductive health. We observed a very high level of awareness among the participants for the knowledge of puberty and development, process of menstruation and ovulation, sexually transmitted diseases, contraception and medical termination of pregnancy, cleanliness of external genitalia and sexual hygiene. Several studies conducted across different parts of India revealed that, the awareness level for reproductive health among the adolescents is below average.[17-22] However, studies conducted among science students or medical students reported a considerably high level of awareness for reproductive health.[23,24] Our study population also included only students pursuing health professional courses hence, a very high level of awareness was observed in our study, since study of reproductive health is an essential part of their curriculum.

CONCLUSION

The study outcomes despite high level of awareness among the participants we observed a considerably high prevalence of dysmenorrhoea which was even more prevalent, in the obese category. National level large scale epidemiological studies on menstrual problems are warranted to address this issue and alarm the policy makers about the prevalence of such a debilitating disorder which leads to decrease health related quality of life in the most productive stage of life of women.

ACKNOWLEDGMENTS

Authors would like to thank the students for their participation and the teachers for their assistance in data collection.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Chennuru R, Srungavarapu R, Ikkurthy NS, Begum J. Gynecological problems and reproductive health awareness amongst late adolescent girls pursuing professional courses: a questionnaire based survey. Int J Reprod Contracept Obstet Gynecol 2019;8:2861-6.