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Assessment PCOS And Implementation Of Nutritional Knowledge Among Adolescent Girls (15-18 Years)

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Abstract:

INTRODUCTION Polycystic ovary syndrome (PCOS) is one of the most common female endocrine disorders. PCOS is a complex, heterogeneous disorder of uncertain etiology. Aim : To make the assessment of PCOS and implementation of nutritional knowledge among adolescent girls (15-18 years)". **MATERIALS AND METHOD** A prospective study was using random sampling technique is used to collect the data. 300 subjects school going girls in Chennai taken for the study. A pro forma with PCO quiz are the tools used to collect data from selected subjects. **RESULTS AND DISCUSSION** The mean of height was found to be 1.52meters, weight 52.6kgs and BMI 22.04 Kg/M². In food frequency except for 15 years all age group includes maximum amount of cereals, pulses, vegetables and fruits. Very little percentage in all the age groups having carbonated beverages, chocolates and biscuits in daily basis. Menstrual irregularities and skin problem found to be higher in 15 years, whereas, weight and insulin based problems and related problems were found be higher in 18 years. PCOS score of 17 years age group was 2.9054±1.7452 which was found to be comparatively higher any other age groups. There was a significant correlation between PCO score and BMI at 5 percent level in obese and overweight subjects. **CONCLUSION** It can be very difficult to diagnose PCOS in teenage girls as they often experience irregular or absent menses and acne. Early diagnosis will help find a better solution and maintaining a healthy lifestyle pattern will help a women ease the symptoms of PCO and also various health related complications.

Key words: PCOS, Acne, Hirsutism, BMI

1.Introduction

Adolescence is characterized by the growth spurt, a period in which growth is very fast. During this time, physical changes affect the body's nutritional needs, while changes in one's lifestyle may affect eating habits and food choices. This is about the same period puberty sets in, typically between the ages of 10 and 13 years in girls. (McAnarney et al 1992). Adolescents preoccupied with after-school activities and engagement in active social endeavors, adolescents are not always able to sit down for three meals a day. When teens skipping meals at home is prevalent, the likelihood of purchasing fast food from a restaurant, vending machine or convenience store will be high. These foods tend to be high in fat and sugar and they provide little nutritional value and this end up in diseases includes obesity, heart diseases, diabetes, PCOS and other metabolic complications (Harnack L, et al 1999). The principal features are an ovulation, resulting in irregular menstruation, amenorrhea, ovulation-related infertility, and polycystic ovaries; excessive amounts or effects of androgenic hormones, resulting in acne and hirsutism; and insulin resistance, often associated with obesity, Type 2 diabetes, and high cholesterol levels. The symptoms and severity of the syndrome vary greatly among affected women (Christine Cortet-Rudelli,2006). Augustin L,et, al, 2002, reported that, recent studies found that More than 50 percent of women with PCOS will have diabetes or pre-diabetes before the age of 40.The risk of heart attack is 4 to 7 times higher in women with PCOS than women of the same age without PCOS. Women with PCOS are at greater risk of having high blood pressure, high levels of LDL cholesterol and low levels of HDL cholesterol. They can develop sleep apnea; this is when breathing stops for short periods of time during sleep. Women with PCOS may also develop anxiety and depression. Causes may include inappropriate weight gain, unhealthy eating habits and sedentary lifestyle without any physical activity which leads to fat deposition which can further cause metabolic complications related to PCOS. Eating balanced diet, by balancing the carbohydrate with sources of lean proteins and healthy fats.

These will help balance blood sugars and help keep satisfied. Eating every 3 to 4 hours during the day can help even out blood sugars and ease cravings. Satisfying the sweet tooth with fruit and regularly exercise helps for PCOS. (Howard BV, 2006).

2. Materials And Method

A prospective study was conducted to obtain relevant data. Sampling technique: Random sampling technique is used to collect the subjects. Place of study: The study was carried out in Jai Gopal Garodia Girls' higher secondary school, Chennai. Sample size: Total number of subjects enrolled for the study is 315 subjects, but the detailed required for the study was collected from 300 subjects (i.e. is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility) Period of study: The study extended for a period of 3 months (Jan 2011-Mar 2011) Tools used for study: A Proforma was used which consists of the questionnaire which is used to elicit the information about the demographic details, food frequency, anthropometric data includes, height, weight and BMI and PCO quiz, a questionnaire consist of questions like menstrual symptoms, insulin based conditions, skin problems, weight gain and also other conditions related to menstruation. (annexure 1)

Flip chart and Pamphlet contains, causes, symptoms and treatment of PCOS was used as a teaching aid

2.1. Criteria For Selection Of The Subjects

- Inclusion criteria
 - School going girls aged 15-18 yrs
 - Subjects willing to participate
- Exclusion criteria
 - Subjects below 15 yrs of age

3. Results And Discussion

In this current study, mean and standard deviation of height, weight, BMI of the selected subjects in 15 years age group were 1.5417 ± 0.420 , 50.0286 ± 7.0587 , 21.0580 ± 2.9109 in 16 years 1.5173 ± 0.3477 , 52.3246 ± 3.8730 , 21.9447 ± 2.8222 in 17 years 1.5042 ± 0.239 , 53.5676 ± 3.3231 , 22.2944 ± 4.0468 and in 18 years 1.5568 ± 0.1574 , 54.5610 ± 4.0807 , 22.8874 ± 2.9644 . Each food group in the food frequency of selected subjects was weighted on the basis of the maximum consuming age group. In that, it has been found that 100% of the selected subjects include cereal in different forms everyday in their diet. The pulses intake has been taken maximum (98%) by the subject of 18 years, maximum (88%) consumption of vegetable in 17 years, fruits intake of the selected subjects has been found that 58% in 16 years age group include fruits once in a week whereas the subjects coming under other age groups were found to consume fruits on a moderate frequency. The non-vegetarian food intake of the selected subjects has been found that subjects in all age groups include non-vegetarian foods once in a week. Whereas five percent in 18 years and one percent in 16 and 17 years includes non vegetarian foods in their daily diet. 39% in 15 years, 16% in 15 & 16 years and 10% in 18 years were including fried foods daily in their diet. On the other hand seven percent in 16 years, five percent in 15 years, three and two percent in 17 and 18 years were consuming these beverages on a daily basis. The consumption of sweets, chocolates, biscuits of the subjects has been found that most of them in all age groups consume sweets almost every day. It was found that, 25% in 15 years, 14% in 16 years, five and two per cent in 17 & 18 years do not consume milk in any form. The consumption of water per day of the subjects was found that 100% of the subjects in age groups 15 and 18 years consume 1-2 liters of water per day. The meal skipping pattern of the subjects was found to maximum (93%) in the 15 years age group and it was found that they tend to skip breakfast which is the most important meal of the day.

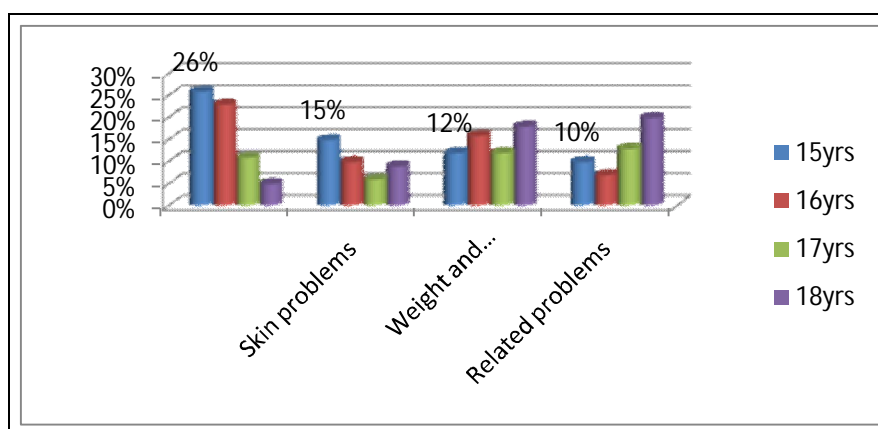


Figure 1: The Percentage Distribution Of The Selected Subjects Based On The PCO Quiz

Figure 1 shows that, menstrual irregularities and skin problem found to be higher in 15 years, whereas, weight and insulin based problems and related problems were found to be higher in 18 years. This menstrual irregularities can be due to significant weight gain or loss, over-exercise, poor nutrition (or a diet too high in carbohydrates), smoking, drug use, eating disorders, increased stress, polycystic ovarian syndrome/estrogen dominance, uterine abnormalities (fibroids/cysts/polyps/ectopic endometriosis), medications. (Beresford SA, et

al,2006). Among the selected subjects, PCO score of eleven percent of them was in higher range, 6-7marks, indicates they are more prone to PCOS because these subjects had other symptoms along with menstrual irregularities.

Age	N=300	PCO score Mean±SD	PCO QUIZ SCORING									
			0-1		2-3		4-5		6-7		8-9	
			N	%	N	%	N	%	N	%	N	%
15	70	1.8823±1.87323	31	44	21	30	16	23	-	0	-	0
16	115	2.2807±1.8119	47	41	29	25	37	32	3	3	-	0
17	74	2.9054±1.7452	15	20	17	23	35	47	3	4	-	0
18	41	1.7317±1.5972	17	41	17	41	7	17	-	0	-	0

Table 1: Percentage Distribution Of The Selected Subjects Based On The PCO Quiz Score With Mean And Standard Deviation

From above table we came to know that, 17 years age group scoring was 2.9054±1.7452 which was found to be comparatively higher any other age groups. The PCO scoring has been rated as subjects coming under the 0-4 category are less or no chance getting PCOS whereas scoring rate 5-9 represents the subjects who are more prone to get PCO and among the subjects who come under more chance getting PCOS Treatment may be Lifestyle changes which can help in a best way along with the medications if necessary. PCOS is the most common hormonal disorder in women during their reproductive years. The good news is that an improved diet and regular exercise can help a woman lose weight and ease her symptoms (Peterson S, Sigman-Grant M.,1997)

Percentage and interpretation of BMI where 50% of the subjects were found to be in overweight category. 8% of the subjects in obese category and 33% of them in normal category based on the BMI.

It is surprising however how PCOS can be controlled by simply enforcing lifestyle and diet changes. Ensuring you take regular exercise, are of a healthy weight, and maintaining a BMI between 19 and 25 is essential as this is frequently all that is required to correct the hormonal imbalance. This will then help to restore ovulation and fertility, and improve acne and hirsutism. (Subar AF,et al, 1998)

BMI	PCO SCORE				't'	Significance
	No or Less chance		More Chance			
	N	%	N	%		
Severe Malnutrition	4	1	0	0	0.345	P<0.05
Moderate Malnutrition	2	1	0	0	0.321	
Mild Malnutrition	18	6	0	0	0.053	
Normal	88	30	9	3	0.230(*)	
Overweight	125	43	20	7	0.334(*)	
Obesity	20	7	4	1	0.283 (*)	

Table 2: Correlation Analysis Of The Pco Score With Bmi Of the selected subjects

*Correlation Is Significant At 0.05 Level

Table shows there is a significant correlation between PCO score and BMI at 5 percent level in obese and overweight subjects. There's no current proof of any benefit of preventative weight loss. But the best advice for overall health is to maintain a normal weight or BMI, particularly if you have strong indicators that PCOS could affect you (Zaimin W, 2003).

4. Conclusion

There is a saying "Prevention is better than cure", it is always better to ease the symptoms with early diagnosis and maintaining a healthy lifestyle to prevent before anything could be hazardous to health or to be aware of rather than getting anxious when some health ailments occur all of a sudden. Teenagers may experience the full range of symptoms seen in more mature women including irregular or completely absent periods. It can be very difficult to diagnose PCOS in teenage girls as they often experience irregular or absent menses and acne. Early diagnosis will help find a better solution and maintaining a healthy lifestyle pattern will help a women ease the symptoms of PCO and also various health related complications.

5.Suggestions For Future Study

Sample size can be increased for better results

Girls belongs to the group of below 10 years

5.1.PROFORMA

Name :

Age/sex :

Height : Weight : BMI :

1.How many meals do you have per day?

a.5 b.4 c.3 d.2 e. 1

2.How much of water do you drink each day?

a.>4L b.3L c. 2L d.1/2L

3.How many hours do you watch television?

a. Several hours b. 2 hours c. one hour d. ½ hour

4.In past 3 months,how often have you involved in physical activity?

2times/week b. once/week c. once/month d. never

5.On average how much hours do you spend sleeping per day?

>10 hrs b. 8-10hrs c. 6-7hrs d. <5hrs

6.How frequently do you spend time in playing video games/computer?

a. Several times/week b. once/week c. once/month d. never

7.How often do you consume milk per day?

a.>3 times b. twice c. once d. never

8.How often do you eat fruits and vegetables?

Several times/week b. once/week c. rare d. never

9.How often do you consume non-veg foods?

Several times/week b. once/week c. twice/month d. once/month

10.How often do you consume soft drinks(carbonated drinks)?

a. Several times/week b. once/week c. once/month d. never

11.How often do you eat sweets?

Several times/week b. once/week c. once/month d. never

12. How often do you consume cakes/cookies/biscuits?

a. Several times/week b. once/week c. twice/month d. never

13. How often do you eat chewing gum?

Several times/week b. once/week c. twice/month d. never

14. How often do you eat candy/chocolates?

Several times/week b. once/week c. twice/month d. never

15. How often do you consume potato chips/popcorns?

a.Several times/week b. once/week c. twice/month d. never

16. How often do you eat pizza/ burger/ sandwich/puffs/samosa?

a. Several times/week b. once/week c. twice/month d. never

17. Do you usually consume fruit juices?how many times?

Several times/week b. once/week c. twice/month d. never

18. Do you usually drink coffee/tea?how often per day?

thrice b. twice c. once d. never

19. Do you play at school?if yeshow much time do you spend on playing?

60mins/day b. 45mins/day c. 60mins/week d. 45mins/week

20. Do you skip your meals or have any fasting?

a. Several times/week b. once/week c.. once/month d. never

5.2.PCOS Quiz

<input type="checkbox"/>	Eight or fewer periods per year
<input type="checkbox"/>	No periods for an extended period of time (4 or more months)
<input type="checkbox"/>	Irregular bleeding that starts and stops intermittently
<input type="checkbox"/>	Fertility problems (Score 2 points if you have seen a fertility specialist or been treated with fertility drugs to induce ovulation.)

Section 1: Menstrual Irregularities

<input type="checkbox"/>	Adult acne, or severe adolescent acne
<input type="checkbox"/>	Excess facial or body hair, especially upper lip, chin, neck, chest and/or abdomen
<input type="checkbox"/>	Skin tags
<input type="checkbox"/>	Balding or thinning hair
<input type="checkbox"/>	Dark or discolored patches of skin on your neck, groin, under arms or in skin folds. (Score 2 points if you answer yes to this question.)

Section 2: Skin Problems

<input type="checkbox"/>	Excess weight or difficulty maintaining weight (Score 2 points if your excess weight is centered around your middle)
<input type="checkbox"/>	Sudden unexplained weight gain
<input type="checkbox"/>	Shaking, lack of concentration, uncontrollable hunger and/or mood swings 2 or more hours after a meal
<input type="checkbox"/>	Type II Diabetes (Score 2 points if you answer yes to this question)
<input type="checkbox"/>	Family history of Type II Diabetes, Heart Disease or Hypertension

Section 3: Weight And Insulin-Based Problems

<input type="checkbox"/>	Migraines
<input type="checkbox"/>	Depression and/or anxiety
<input type="checkbox"/>	Rapid pulse and/or irregular heartbeat
<input type="checkbox"/>	Pregnancy complications such as gestational diabetes or excess amniotic fluid

Section 4: Related Problems

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