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Research Article

**DOES HIGH BODY MASS INDEX REDUCES CHANCES OF
CONCEPTION AMONG ELIGIBLE COUPES?**¹Dr. Khushbakht Ali Khan, ²Dr. Amna Yousaf, ³Dr. Amina Tahir, ⁴Dr. Muhammad Sohaib Yousaf¹WMO DHQ Hospital Okara²Mayo Hospital Lahore³Demonstrator, Department of Physiology, Amna Inayat Medical College Lahore⁴BHU 67ML Bhakkar**Abstract:**

Objective: The study aims in determining the effect of obesity on fertility rate in women of child bearing age. The obesity due to PCOS (polycystic ovarian syndrome) and any other cause was compared to study the effect.

Methods: The women of child bearing age who were suffering from PCOS and had BMI falling in obese range along with women with obesity due any cause other than PCOS were included in the study. The study was conducted at Mayo hospital, Lahore after taking permission from ethical board. Total 121 patients were enrolled in study. The cases included in study were chosen from those who presented to hospital infertility clinic. Study duration was 1 year lasting from January, 2017 to December, 2017. Study follows descriptive pattern.

Results: There was significant relationship between BMI and PCOS and infertility.

Key words: infertility, women, polycystic ovarian syndrome, obesity.

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INTRODUCTION:

Polycystic ovarian syndrome is a common endocrinological problem in women. This occurs due to elevated blood androgens levels which results in signs and symptoms like, obesity, reduced fertility rate, acne, hirsutism, thickened skin, hyperpigmentation, irregular menstruation whether oligomenorrhea or amenorrhea. The other associated diseases are diabetes mellitus, ischemic heart disease, obesity, adrenal gland tumors etc.

Diagnosis is made on the basis of measuring serum androgen levels and signs and symptoms, LH, FSH ratio is measured. On abdominopelvic ultrasonography, multiple ovarian cysts are noticed. Cause of disease is still unknown. It starts after first menstruation or may be later in life during child bearing age [1,2]. The weight loss can help in reducing the disease symptoms and improve overall health status in patients with PCOS. Disease has no particular treatment. However, the obesity can be controlled by exercise and dietary restrictions, besides that metformin is advised. The menstrual irregularities are treated by prescribing oral contraceptive pills.

[3,4] Obesity affects serum level of certain hormones, for example LH (leutinizing hormone), prolactin, FSH (follicle stimulating hormone) which alters the

reproductive hormones levels and as a results affects the fertility rate. However, this study is conducted to find out whether bringing BMI within normal range helps in treating infertility or not. In addition to that, it also studies the effect of obesity on fertility rate in non-PCOS patients.

METHODOLOGY:

One hundred and twenty one infertile women of child bearing age were enrolled in study, these were diagnosed or still to be diagnosed cases of PCOS, obese infertile and healthy infertile women who presented to infertility clinic at Mayo Hospital, Lahore, Pakistan. Study duration was one year starting from January 2017 to December, 2017. No ethical issue certificate was signed from hospital ethical board. Informed written consent was taken from all participants. Amongst 12 cases, 52 were obese PCOS, 30 were infertile, 39 were healthy cases enrolled in study. A questionnaire was designed to collect data including biodata of patient, BMI. Body mass index was measured and its relation with PCOS was estimated. The formula used to calculate BMI was:

$BMI (kg/m^2) = weight \text{ in } kg / height \text{ in } meters \text{ square.}$

The BMI range defined by WHO was followed to stratify patients into different categories according to weight (table:1).

Table:1. Stratification of cases according to BMI.

BMI Range	interpretation
<18.5	underweight
18.5 to 24.9	Normal weight
25 to 29.9	overweight
30 or above	obese

SPSS version 20 was utilized to analyse data. P-value of less than 0.05 was considered statistically significant.

RESULTS:

The evaluation of patients was done according to the method mentioned above. After that, the number of patients who were obese with PCOS and those who were obese without PCOS were calculated. The results were 52 and 30, respectively.

Table:2 Statistics of groups.

group		Number of cases	Mean	SD of mean	Mean Error
BMI	C	30	24.60	4.11	0.75
BMI	T	52	27.30	4.28	0.59

Table:3. Comparison of BMI statistics in patients with PCOS and those without PCOS.

	Two tailed t-test	Mean difference	Standard error difference	95% lower
Equal variance not assumed	.007	2.699	.958	.770
Equal variance assumed	.007	2.699	.969	.783

The statistical comparison shown above clearly depicts that obesity in infertile PCOS patients is higher than obesity in non PCOS patients, which means obesity with PCOS is a main culprit in causing infertility in women as compared to obesity due to other reasons.

DISCUSSION:

[4] A study conducted by Antoniotti GS, et al in 2017 and published in Human Reproduction Journal in 2018 elaborated the effect of obesity induced changes within uterine cavity and its effects on conception. The study results were raised AGE levels in uterine cells in obese as compared to non obese which hampers the proliferative phase of uterine cells and thus cause less effective conception as compared to lean individuals.

[5] The obesity is not only a culprit in reducing fertility in women but it has its adverse effects of male sperm quality and count as well. Thus both genders are somehow affected by obesity.[6] A study conducted by Sinha A, et al searched for the effect of lipid peroxidation on sperms and oocytes, clinical effects of obesity and dyslipidemia on male and female infertility and concluded that obesity is one of the factors causing infertility in humans in both sexes.

In a study conducted by Christ JP, et al the effect of reducing obesity through bariatric surgery in PCOS patients helped in reducing the altered reproductive enzymes levels and thus helps in improving fertility status. Similar effect was studied by Simoes-Periera, et al. The aim of our study is to estimate the damage on reproduction caused by obesity in PCOS women and non PCOS women. As less research data is available on Pakistani population, thus this title was aimed to study the effect on local population.

CONCLUSION:

The p value turned out to be 0.007 which showed significant association between increased BMI and PCOS. The obesity in PCOS is the cause of insulin resistance and infertility. By weight loss reproductive health of women suffering from PCOS can be improved.

REFERENCES:

- 1- Silvestris E, et al. Obesity as disruptor of female fertility. *Reproductive Biology and Endocrinology*. 2018;16:22.
- 2- Khomami MB, Boyle JA, Tay CT, Vanky E, Teede H, et al. Polycystic ovarian syndrome and adverse pregnancy outcomes: current state of knowledge, challenges and potential implications for practice. *Clinical Endocrinology* 2018.
- 3- Athar S, Hamcho MA, Tellisi AK, et al. Effects of BMI on pregnancy rates following ovulation induction and assisted conception amongst women in Qatar experiencing infertility. *Gynecology and Obstetrics* 2018.
- 4- Antoniotti GS, Coughlan M, Salamonsen LA, Evans J. Obesity associated advanced glycation and products within human uterine cavity adversely affect endometrial function and embryo implantation competence. *Human Reproduction* 2018; 33(4): 654-665.
- 5- Ramaraju GA, Teppala S, Prathigudupu K, et al. Association between obesity and sperm quality. *Andrologia* 2017.
- 6- Sinha A, Gupta S. Lipid peroxidation and its impact on infertility. *Women's Health and Gynecology* 2018; 4(1):82.
- 7- Christ JP, Falcon T. bariatric surgery improves hyperandrogenism, menstrual irregularities and metabolic dysfunction among women with polycystic ovary syndrome. *Obes Surg*. 2018:1-8.
- 8- Simoes-Pereira, Nunes J, Aguiar A, Sousa S, Rodrigues C, et al. Influence of body mass index in anti-mullerian hormone levels in 951 non-polycystic ovarian syndrome women followed at a reproductive medicine unit. *Endocrine* 2018:1-5.