

# The Association of Age, Weight, and History of Stress and Caffeine Consumption with Infertility Occurrence in Females

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**Abstract**— The reproductive system is a system of sex organs within an organism which work together for the purpose of reproduction. Many factors are associated with infertility in men and women, but conventionally factors including age, weight, stress and caffeine consumption are generally attributed to infertility by the public. The main aim of this study was to determine the association between age, weight, stress and caffeine consumption and infertility. In our study, we studied fertile women and infertile women who were referred to hospitals or care centers. Information obtained through standard questionnaire and the data were analyzed statistically. The results of this study indicated that there was not significant difference between age mean, history of fear of not being able to get pregnant (as stress) and caffeine consumption in fertile and infertile females, but infertile female had significantly higher weight compared to fertile women. In conclusion, weight gaining played a significant role in women infertility occurrence.

**Keywords**— Age, Weight, Stress, Caffeine, Infertility, Females.

## I. INTRODUCTION

FERTILITY changes with age. Both males and females become fertile in their teens following puberty. For girls, the beginning of their reproductive years is marked by the onset of ovulation and menstruation. It is commonly understood that after *menopause*, women are no longer able to become pregnant. There are many factors influencing fertility in males and females [1]-[4]. Generally, reproductive potential decreases as women get older, and fertility can be expected to end 5 to 10 years before menopause[5]. Infertility usually is diagnosed if a woman has not become pregnant after 1 year of unprotected intercourse (i.e., no contraceptive measures used). However, if she is 35 or older, the evaluation should begin after 6 months of trying unsuccessfully to conceive [6]. Studies show that being overweight or obese can significantly reduce fertility and even the success rate of infertility treatments [7]. When people are under stress, they tend to eat in less than healthy ways. Constant stress has been shown to lead to weight gain, and weight gain and obesity

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have in turn been linked to fertility problems [8]. The research indicate that high levels of caffeine consumption may result in delayed conception [9]. This study was carried out to determine the association between age, weight, stress and caffeine consumption and infertility.

## II. MATERIAL AND METHODS

### A. Protocol of Study

We carried out an observational-analytic- retrospective study. Participants included infertile women and fertile women (first pregnancy). After receiving consent, each participant was replaced with the code for the participants to remain anonymous. Standard questionnaire was used to collect the data about sex, age, weight, history of caffeine consumption, history of stress, and other individual and clinical characteristics in participants.

### B. Statistical Analysis

All values are presented as mean $\pm$ SD. Statistical significance was evaluated by independent sample t-test (for quantitative data) and chi square tests (for qualitative data) using SPSS 19. Differences with  $P < 0.05$  were considered significant.

## III. RESULTS

### A. The results of this study have shown that:

1. Considering 5% error, since  $t = -1.755$ ,  $df = 58$ ,  $p\text{-value} = 0.085 > \alpha = 0.05$ , then there was not a significant difference between age mean in fertile and infertile group.
2. Considering 5% error, since  $t = -2.125$ ,  $df = 58$ ,  $p\text{-value} = 0.038 < \alpha = 0.05$ , then there was a significant difference between weight mean in fertile and infertile group.
3. Considering 5% error, since  $p\text{-value} = 0.605 > \alpha = 0.05$ , then there was not significant relationship between infertility and fear of not being able to get pregnant (as stress) before attempting to get pregnant in infertile women.
4. Considering 5% error, since  $p\text{-value} = 0.292 > \alpha = 0.05$ , then there was not relationship between infertility and caffeine consumption before attempting to get pregnant in infertile women.

## IV. DISCUSSION

The results of current research show that there was not significant difference between age mean, history of ... and caffeine consumption in fertile and infertile females, but infertile female had significantly higher weight compared to

fertile women. A person's time to pregnancy and their chance of having a healthy, live birth may be affected by factors such as weight, vitamin and iodine intake, alcohol and caffeine consumption, smoking, substance abuse, stress, environmental pollutants, vaccinations and oxidative stress [10].

Obesity is a major international problem related to many reproductive health problems. Other studies also show that obese women have a well-known risk for infertility (11). The researchers have shown that the high levels of insulin in obese people make the pituitary more sensitive to GnRH and help initiate a hormonal chain-reaction that disrupts fertility (12). Despite an extensive list of publications investigating the effect of dietary caffeine on fertility, there have been conflicting reports. Some have demonstrated an association of caffeine with infertility, while others have not shown any obvious adverse effects on a couple's ability to conceive [13], [10]. Interestingly, there have even been small scale studies which demonstrate improved fertility with certain caffeinated beverages. Environmental agents interact with and/or affect reproductive tissues and functions through a variety of receptors linked to different organ systems. Stress affects a large number of biological systems, including the reproductive system and infertility (14). Although fear of not being able to get pregnant is a common stress among females before getting pregnant, in our study, there was not significant relationship between this type of stress and infertility.

## V. CONCLUSION

We have shown that among factors (age, weight, stress and caffeine consumption) referred to as general causes of infertility by the public, only obesity was prominent factor playing a role in women infertility occurrence.

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