



AWARENESS OF CONSUMING CAFFEINE IN PREGNANT WOMEN

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ABSTRACT

This study is done to evaluate the awareness of consuming caffeine among pregnant women. Caffeine crosses the placenta and reaches to the baby. Although the mother can be able to handle the amounts of caffeine taken but the baby cannot. The baby's metabolism is still maturing and cannot fully metabolize the caffeine. Any small amount of caffeine can also cause changes in baby's sleep pattern or normal movement pattern in the later stages of pregnancy. Remember, caffeine is a stimulant and can keep both mother and baby awake. This study is done with the help of questionnaire based survey. 300 pregnant women participated in this survey and the questionnaire was circulated manually and through online. The data was clubbed and the final results were obtained by using the spss software version 9.0. Caffeine is a stimulant and a diuretic. Because caffeine is a stimulant, it increases the mother's blood pressure and heart rate, both of which are not recommended during pregnancy. Thus study aims to create awareness among pregnant women about consuming caffeine. Pregnant women were unaware about the side effects of consuming caffeine during pregnancy and so an awareness and full knowledge was provided to the women through this survey.

KEYWORDS: Caffeine, pregnant women, blood pressure, awareness, stimulant.



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INTRODUCTION

Throughout the world caffeinated drinks like tea, coffee and soft drinks are frequently consumed¹. A moderate quantity of caffeine acts as a central nervous system stimulant² blocking the adenosine receptors which inhibit the neuronal activity^{2,3}. 75-93% of the pregnant women consume caffeine daily^{4,5} which affects the child's neurodevelopment. It reaches the fetal brain by crossing the placenta⁶ and the fetal blood brain barrier⁷. Caffeine's potential program has an influence on the fetal brain development. During pregnancy the caffeine ingestion is associated with bio chemical alterations, reduction of fetal cerebral weight, increased emotional reactivity, impulsivity. During pregnancy caffeine intake can also affect the offspring's neurodevelopment. Onset of spontaneous labor before 37 week of gestation is preterm birth. It is the leading cause for neonatal mortality associated with increased risk of neurodevelopment, respiratory and other complications⁸. Caffeine consumption by pregnant women was one of the prenatal exposures examined associated with preterm birth. An increased risk of growth restriction, skeletal abnormalities in children whose mother have taken high intake of caffeine during pregnancy is showed by the studies⁹. An adenosine receptor with short term physiological including release of catecholamines¹¹ blood pressure increase, withdrawal syndrome is Caffeine. The mechanism through which caffeine affect the fertility is still uncertain. Caffeine is associated with estradiol and other hormone alterations¹² which affects the ovulation. A shorter menstrual cycle length and a long menstrual cycle length has also been related to caffeine consumption. Half-life period needed 1.5 to 3.5 times longer to eliminate caffeine, compared to non-pregnant women as there is a slow caffeine metabolism in pregnant women. Caffeine can be transported across placenta because it has been detected in uterine secretions and amniotic fluid^[10]. A low level of enzymes are produced by the immaturity of the fetus for caffeine

metabolism. This also leads to adverse outcomes such as low birth weight. Caffeine is a diuretic that washes calcium and other pregnancy nutrients out of the body before they can be thoroughly absorbed. Another downside to this diuretic effect: frequent urination. Caffeine's stimulating effects may make those already delightful mood swings even more volatile and intense. This study is done to evaluate the awareness of consuming caffeine among pregnant women. This study is done to evaluate and create awareness among pregnant women's about the consumption of coffee.

MATERIALS AND METHODS

The pregnant women's living in chennai were approached for participation. A questionnaire was prepared and circulated among them. Questionnaire was made available also online through google docs. Some questionnaire were filled manually and some through online submission. Manually the questionnaires were made to filled by visiting some hospitals and making the women aware of the effects of caffeine for their baby. Various maternity centers were visited and different doctors were approached and then the questionnaire was distributed. Many women were not interested to participate and so the willing people were taken and made to fill the questionnaire. 300 pregnant women's participated in this survey and the results were obtained by using spss version 9.0. After the questionnaire the women were asked to share their knowledge or opinion about the same. Almost none of them knew the serious effects of caffeine during pregnancy. And so even an awareness was given to them regarding the same. Both manual and online data were clubbed and the results were obtained. The online survey link is mentioned below:

https://docs.google.com/forms/d/1mTfSgU-mpLJgLRHnoOmOtdbbNI96u_NrJ4kr0mOUU/viewform?c=0&w=1&usp=mail_form_link

The questionnaire made is as follows:

Questionnaire No. _____ Date: _____

AWARENESS OF CONSUMING CAFFEINE IN PREGNANT WOMEN

Dear participants,

This questionnaire is for collecting information about consumption of caffeine in pregnant women. Please answer by ticking one alternative for each question. Your participation is highly appreciated.

1. Do you consume coffee?
 - A) Yes
 - B) No
2. How frequently do you consume it?
 - A) Once a day
 - B) Twice a day
 - C) More than twice
3. Do you think it is good for your health?
 - A) Yes
 - B) No
4. Do you feel uncomfortable without drinking it?
 - A) Yes
 - B) No
5. Do you think it will make you brist?
 - A) Yes
 - B) No
6. Do you think drinking it will affect your baby?
 - A) Yes
 - B) No
7. Do you think this will make your baby's skin dark?
 - A) Yes
 - B) No
8. Do you know the side effects of it?
 - A) Yes
 - B) No
9. Are you aware that caffeine is present in various other drinks?
 - A) Yes
 - B) No
10. Do you approximately consume 100mg a day?
 - A) Yes
 - B) No
11. Are you aware that caffeine increases blood pressure and amount of urine?
 - A) Yes
 - B) No
12. Do you feel dull without caffeine consumption?
 - A) Yes
 - B) No
13. Do you frequently drink soft drinks and soda?
 - A) Yes
 - B) No
14. Are you aware that caffeine consumption makes your child hyperactive?
 - A) Yes
 - B) No
15. Are you aware that caffeine intake can also lead to preterm delivery?
 - A) Yes
 - B) No
16. Do you know that caffeine can make your child obese?
 - A) Yes
 - B) No
17. Are you aware that more intake of caffeine can lead to miscarriage?
 - A) Yes
 - B) No

Figure 1

Table 1

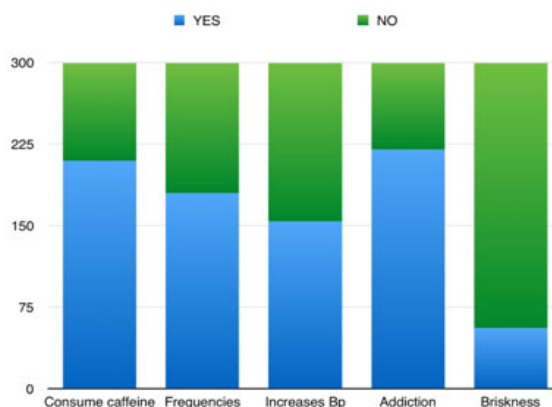
Questions	Yes (in number)	No (in number)
Consume caffeine	210	90
Frequencies	180	120
Good for health	280	20
Addiction	220	80
Briskness	56	244
Affect your baby	184	116
Side effects	99	201
Other drinks	243	57
100 mg/day	78	222
Increases Bp and urine	154	146
Child hyperactive	65	235
Preterm delivery	123	177
Child obese	33	267
Leads to miscarriage	190	110

RESULTS

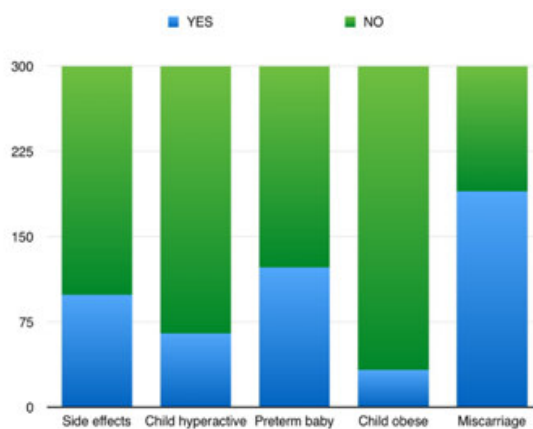
Survey showed that majority of them consumed caffeine twice a day. Mostly women were unaware about the side effects of consuming caffeine. Many of them did not feel uncomfortable without consuming caffeine but still consumed it. Majority of them knew that it affects fetus but still couldnot control drinking it. Everyone knew that

caffeine was also present in small amounts in various other soft drinks. Majority of them were unaware that that it could make their child hyperactive, increase blood pressure and even make child obese. Therefore a significant awareness was created among the pregnant women about the consumption of caffeine through this survey.

Graph 1



Graph 2



DISCUSSION

In several aspects caffeine can directly affect the fetus by crossing the placental barrier easily. Caffeine cannot be metabolized by fetus or the placenta in pregnancy therefore the half life of caffeine is greatly increased¹³. Associations between caffeine intake during pregnancy and birth weight in previous studies showed inconsistent associations¹⁴. Negative associations between caffeine intake and weight and length growth were found. Adverse effects of caffeine consumption on fetal growth was suggest in previous study by the CARE study group¹⁵. Studies have found that caffeine intake of >6/day units during pregnancy associated with impaired fetal length and weight growth. Significant associations were found between high caffeine intake and fetal growth constriction and shorter gestational age¹⁵. High caffeine consumption was defined in other prospective studies as above 107mg/day in U.S study¹⁶, over 700mgs/day in Danish study¹⁷, highest category had 300mgs/day^{18,19}. In pregnant women, shortly after birth or in some after many pregnancy attempts majority of studies have assessed caffeine and individual beverages. Caffeine is predominantly metabolized by cytochrome P450 1A2 enzyme²⁰. CYP1A2 activity is reduced in early and late pregnancy was reported by Tsutsumi et al²¹. Caffeine can be present in the plasma of new born by crossing the placenta¹⁰. The fetus can be exposed to caffeine for a long period of time since the levels of CYP1A2 are believed to be low in placenta and fetus. Adenosine is unable to regulate blood flow during hypoxia when the caffeine acts as anatagonist.

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CONCLUSION

The results of this survey show that women are unaware of the side effects of consuming caffeine during pregnancy. A proper awareness has been created to the women about the side effects of consuming caffeine through this survey. It is important that women are aware of the effects of caffeine which will make them to adjust their level of consumption.

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CONFLICT OF INTEREST

Conflict of interest declared none.

FUTURE ASPECTS

This study is done so that the pregnant women are aware of the side effects of caffeine and can even spread awareness among their surroundings. This will help the future mothers to gain knowledge and avoid caffeine in their diet.

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