



RESEARCH ARTICLE

KNOWLEDGE AND AWARENESS OF SOUTH INDIAN FEMALES REGARDING MATERNAL SMOKING AND ITS ADVERSE EFFECTS ON PREGNANCY OUTCOMES- A MULTICENTRED CROSSECTIONAL STUDY

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ABSTRACT

**Background:** Smoking habit acts as the risk factor for Periodontal disease and Adverse pregnancy outcomes. Mild maternal smoking might also cause whopping adverse pregnancy outcomes. Lack of awareness in pregnant woman regarding the adverse outcome of pregnancy with maternal smoking is very common in developing countries like India. The objective of this study was to evaluate knowledge and awareness of south Indian pregnant female about maternal smoking and its association with adverse pregnancy outcomes.

**Materials and Methods:** Multiple optioned 21 questionnaires was prepared with four categories i.e about smoking habit, stress levels, smoking effects on pregnancy outcomes, and discontinuing the habit. Maternal smoking also related with stress levels. Questionnaire forms were distributed to 440 pregnant patients who visited primary health centers in primary health care centers in several parts of south India. Answers were evaluated based on the current evidence available.

**Results:** Most of the pregnant patients 88% (387 patients) who participated in the study were unaware of the relation of smoking with adverse pregnant outcomes. Though, some patients 12 % (53 patients) know the relation, they were not sure about the exact relation. Among the people who aware about the relation, 92% (48 patients) were believing in the severity of adverse pregnancy outcomes depends upon the number of cigarettes that are smoked per day.

**Conclusion:** With this current study we would like to conclude that, there is apparent need of educating female pregnant patients and even women before pregnancy regarding smoking and its adverse effects on pregnancy outcomes. Maternal and children health by educating and preventing adverse habits should be set as public health goals in developing countries like India.

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INTRODUCTION

Birth defects are unexpected complications associated with several risk factors like maternal smoking. Those birth defects could be alone or the combination of preterm birth, low weight during birth, increased gestational periods, restriction of fetal growth, ectopic pregnancy, and placental abnormalities (Behrman and Butler, 2007; Frieden, 2007; Evans and Newcombe, 1979). This is very common in developing countries like India.

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Maternal smoking is also one of the causes of birth defects and subsequent death of children. Every year there are nearly 4-5% of child deaths worldwide due to several birth defects. Several reviews on maternal smoking and its relation to adverse pregnancy outcomes concluded that effects of the smoking will continue on child growth even after birth (Cnattingius, 2004; Behrman and Butler, 2007). Birth defects can also cause a huge amount of mortality of children (Powell-Griner, 1990). Mainly genetic and some epigenetic factors due to maternal habits of a mother adversely affects the fetus during pregnancy. Nevertheless, some reviews do not support the existence of the relation between smoking and adverse pregnancy outcomes (Hackshaw *et al.*, 2011; Carmichael and Shaw, 2000; Lie *et al.*,

2008). In the same way, Some studies failed to show a significant difference in pregnancy outcomes in patients who quit the smoking habit and patients who continued the smoking habit. However, there were no complaints of adverse pregnancy outcomes with the patients who quit the smoking and the results were almost same as non-smokers (Savitz *et al.*, 2010; Lumley *et al.*, 2009). But, a systematic review done by D Nicoletti (2014) came up with a conclusion that there is a dose-dependent relation between smoking habit and adverse pregnancy outcomes (Nicoletti *et al.*, 2014). So any health care professional should be diligent about each etiologic association which will cause even minute harm to the fetus. Even Oral health care professionals should take an active participation in education and motivation of pregnant patients regarding maternal smoking and its adverse outcomes on the fetus. So, the purpose of the present study was to evaluate knowledge and awareness of south Indian pregnant patients regarding adverse pregnancy outcomes associated with maternal smoking.

## MATERIALS AND METHODS

This epidemiological study was conducted in four primary health care centers in south India. A total of 21 questionnaires were prepared with multiple (four) options according to Likert scale. The questionnaire was prepared with reference to the previous survey (Bloch *et al.*, 2008). One would be the right answer among the four. These 21 questionnaires were divided into four main categories. Those categories are, about smoking habit, stress levels, smoking effects on pregnancy outcomes, and discontinuing the habit. Each category got nearly 5 questions but one category got 6 questions and also a fill in the blank about a current smoking status of the patient. Questionnaire forms were printed in different languages and distributed among the pregnant patients based on the patient language convenience. One qualified and trained interviewer is appointed at each center for explaining the questionnaire if a patient is not able to understand the meaning. Forms were collected from the patients after filling. It took on an average 20 minutes to fill the form for each patient and response from the patients was nearly 98 percent. A total of 470 patients with the age range from 24 to 36 were recruited in the study, 30 patients have not filled the form completely, so they were eliminated from the sample. So, finally, 440 patients were considered in sample size. Each correct answers were allotted with score 1 and wrong answer was allotted with score 0. This study was done in the month of April 2016 and required clearances were obtained from all four regional primary health centers. Entire patient's participation was voluntary and each patient gave an informed consent. The answers were given and analyzed based on the current literature available about an association of smoking with adverse pregnancy outcomes.

## RESULTS

Table number 1 shows the overview of the responders based on smoking status and we have also taken the mean age of the patient. Very less number of patients are current smokers and number of patients with former smoking habit is more compared to current smokers. But, a number of patients who never smoke are significant.

**Table 1. Overview of the responders based on the current smoking status and mean age**

	Current smokers	Former smokers	Non-smokers
Number	12	28	400
Mean age	25±1.10	26.41±0.82	29.80±2.32

Chart No: 1 shows there are category wise correct answers among the patients. The majority of the patients (80%) is having knowledge on what is the smoking habit and different types of tobacco smoking habits and also the majority (71%) of patients responded accepted higher stress levels and stress-related jobs lead to addiction of smoking habit. Very less number of patients (12%) knows about smoking and its effects on pregnancy outcomes. However, a huge number of patients (89%) are willing to quit the smoking habit even they don't know exact relation between the smoking and pregnancy outcomes.

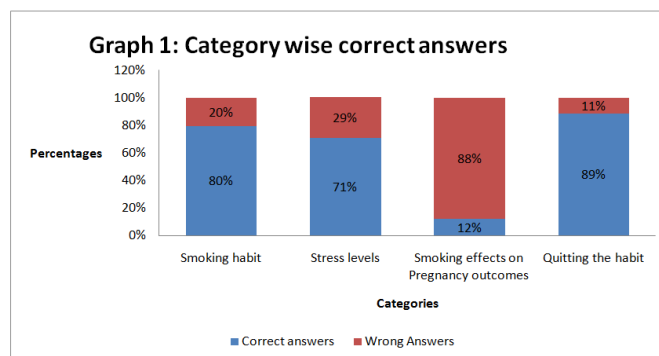
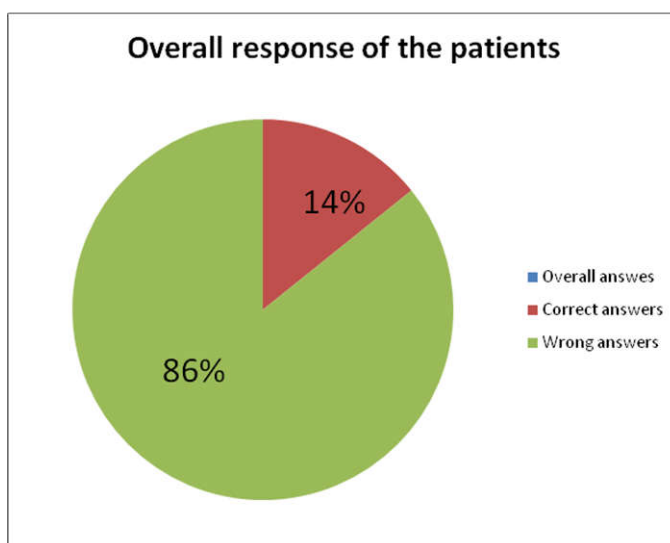


Chart no 2 shows, the overall response from the patients. Very less amount of the patients (14%) gave correct response to all questions

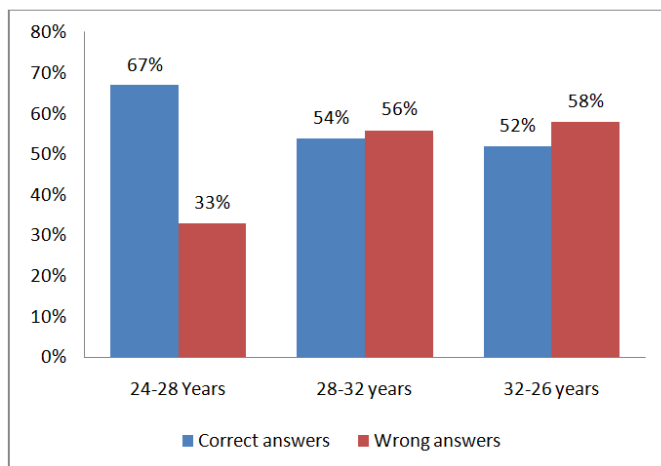


**Chart 2: Overall response of the patients**

Chart 3 is explaining about mean knowledge about cigarette smoking and adverse pregnancy outcomes according to age. Patients age group between 24-28 years gave the correct response (67%) compared to elder age groups 28-32 years (54%) and 32-36 years (52%).

## DISCUSSION

The aim of the present study was to assess knowledge and awareness of the pregnant patients regarding smoking and its adverse effects on pregnancy outcomes. There were very few previous crosssectional studies recorded in this topic. A systematic review was conducted by Nicoletti in 2014, collected studies with smoking pregnant women and their



**Chart 3. Responses according to the Age groups**

children with birth defects. In this study mainly dose-dependent association between maternal smoking and adverse pregnancy outcomes was assessed. Around 60 studies were evaluated to check dose-related adverse outcomes and concluded that there is the apparent dose-dependent relationship is present between cigarette smoking and adverse outcomes. In this study also we tried to assess knowledge of pregnant woman regarding dose-dependent adverse outcomes. With our results, we came to know that there is very less knowledge regarding dose dependency. A survey was done by Bloch M and his coworkers (2008), was the first survey of pregnant women regarding attitude towards smoking and adverse pregnancy outcomes, conducted in 9 nations. In this study results give an idea that nearly 33 percent of the Indians, particularly from the state of Orissa are using tobacco for chewing (smokeless tobacco). Authors also concluded that in some developed countries like Latin America also contain more tobacco use by female pregnant patients. But, in our study, we found only 2.72% as current smokers. This might be due to social inferiority feeling in revealing the habit and might also be due to good education status. Subramanian *et al.* (2004) conducted the cross-sectional study and concluded that nearly 3.4% Indians women have the habit of smoking. But, he also mentioned that there is a great variation with the state to state in India. One interesting result of this study was there was, 13.0% of Indian women are having the habit of chewing tobacco which is a percentage compared to tobacco smoking and 15.5% of women have the habit of using chewing and smoking the tobacco. In our survey, interestingly, many of the pregnant women accepted that the reason behind their smoking addiction was experimentation with smoking initially. These same responses were also observed in previous studies done by DiFranza (2007)

Second-hand smoking (SHS) or passive smoking is also having its own effects on adverse pregnancy outcomes. (State of California, 2007) In our survey also there is a question included regarding SHS. Patients responded very differently to this question. The majority (92%) of the patients don't know that what exactly is the meaning of SHS.

### Conclusion

With this current study, we would like to conclude that, there is apparent need of educating female pregnant patients and even women before pregnancy regarding smoking and its adverse effects on pregnancy outcomes. Maternal and children health

by educating and preventing adverse habits should be set as public health goals in developing countries like India.

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