Neonatal Outcomes among Passive Smokers Pregnant Women

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ABSTRACT

Background: Pregnancy is supposed to be a time of peace and safety. It is a time where the family turns its thoughts towards raising the next generation and growing a healthy baby**.** ***Objectives****:* The aim of this study was to assess neonatal outcomes among passive smoker pregnant women. ***Subject and Methods:*** This case – control study carried out at delivery room in Al-Azhar University Hospital in new Damietta city. The study subjects were purposively selected and consisted of 216 pregnant women at labor which were categorized into 2 groups: exposed to passive smoking, not exposed to passive smoking.Tool for data collection were: An interview schedule and assessment sheet utilized to collect the necessary data. ***Results****:* The results of this study revealed about (76.9%) of women were exposed to passive smoking in their homes and (57.4%) the smokers were their husbands, (54.6%) of them had preterm birth,. A significant relation was found between the PS and related independent variables among the studied pregnant women. ***Recommendations****:* the study recommended the development and dissemination of training courses and education programs for workers in health care settings and antenatal clinics to raise awareness of the seriousness of exposure to PS among pregnant women and their families.

Conclusion*:* It was concluded that exposure to PS during pregnancy was common during pregnancy had adverse neonatal outcomes.

Key words: neonate, passive smoking, pregnancy.

INTRODUCTION

Passive smoking (PS) refers to the inhalation of smoke that is either exhaled by a smoker, or released as side stream smoke from a burning cigarette. Another name for passive smoking is "involuntary smoking," because the person who inhales it often has no choice in the matter ***(Amasha& Jaradeh, 2012).*** It is prevalent in smoking area such as restaurants, offices, and other enclosed spaces when people burn tobacco products as cigarettes and water pipes ***(Mojibyan M et al, 2013).***

Tobacco smoking has been and still primarily a custom and an addiction of men, leaving women and children as the majority of the world's passive or involuntary smokers. The problem of smoking at home is particularly difficult for women in many cultures especially Arab cultures where it may not be acceptable for a woman to ask her husband not to smoke at home or in the presence of her children ***(Mostafa.R. et al, 2011).***

Pregnancy is supposed to be a time of peace and safety. It is a time where the family turns its thoughts towards raising the next generation and growing a healthy baby ***(Centers for Disease Prevention and Control CDPC 2010).*** Intrauterine growth and development is one of the most vulnerable process in human lifecycle and its aberrations can result in lasting profound influence in later life, in the context of developing countries, intrauterine growth has been invariably assessed by birth weight ***(Metgud et al, 2012).*** Exposure to substances like nicotine and carbon monoxide is associated with a number of serious complications during pregnancy ***(Rogers, 2009).*** Maternal passive exposure to tobacco smoke during pregnancy are examples of the most modifiable risk factors which has long been known to influence the birth outcome and the condition of infants at birth as preterm labor, placental complications low birth weight (LBW), and perinatal mortality ***(Salmasi. G et al, 2010).***

Passive smoking can also impair the general development of the placenta, which is problematic because it reduces blood flow to the fetus. When the placenta does not develop fully, the umbilical cord which transfers oxygen and nutrients from the mother's blood to the placenta cannot transfer enough oxygen and nutrients to the fetus, which will not be able to fully grow and develop. These conditions can result in heavy bleeding during delivery that can endanger mother and baby, although cesarean delivery can prevent most deaths ***(Vardavas, Constantine I., et al, 2010).***

Health-care workers should assess passive smoking exposure at the first prenatal visit as well as throughout the course of pregnancy, as circumstances may change at home or in the workplace (e.g. the arrival of a relative who smokes indoors, career moves, etc.) It is important to assess the public's compliance with smoke-free legislation, specifically in low- and middle-income countries, by studying individual passive smoking exposure (through self- reported or biochemically-validated means) in public places and workplaces as well as in the home ***(Shipton D et al., 2009).***

According to Central Agency for Public Mobilization and Statistics there is about 14.1 million smokers, representing 16.6% of the total population. The phenomenon of smoking in Egypt is mainly masculine, as 33.3% of males are smokers compared to only 0.2% of females are smokers. Only 6 million smokers are in urban areas compared to 8.1 million in rural areas. Inspit of more than 20 million individuals are non-smokers but exposed to passive smoking inside the family, because of the presence of one or more smoking family member. 85% of males and females are exposed to passive smoking ***(WHO 2009&CAPMAS - Egypt, 2014).*** There is a theory that, expose the mother to products of cigarette smoking during pregnancy, can be harm for baby as her mother smoking during pregnancy ***(Wadi et al, 2011)***. So, we need to assess labor outcomes among passive smokers pregnant women.

Smoking has a harmful influence on the development of the fetus not only when the mother is an active smoker, but also when a pregnant woman is exposed to passive smoking. Of over 4200 constituents of tobacco smoke, the most harmful to the fetus as nicotine, carbon monoxide and reactive forms of oxygen. The direct influence of nicotine, changes in placental structure,formationofpathologicalhemoglobin(carboxyhemoglobin,methemoglobin,cyanmethemoglobin) result in persistent hypoxia of fetal tissue and a decreased supply of nutrients. ***(*Samper MP, et al, 2012).**

Similarly, a review of 76 studies published in 2010 found that the infants of passive smoking exposed women were at increased risk of low birth weight, congenital anomalies, and smaller head circumferences **(Salmasi G,et al, 2010).** A further review of 19 studies that examined passive smoking exposure during pregnancy specifically among non-smoking women found significantly increased risks of stillbirth and congenital malformation **(Leonardi-Bee J,et al,2011).** The strong finding of a significant increase in NICU admission for women exposed to PS in the prenatal period is noteworthy. These women were 2–4 times more likely to experience complications than nonsmoking mothers. The most reported complications in the infant medical records were respiratory distress syndrome RDS **(Kristin B. et al, 2010).**

AIM OF STUDY:

The aim of this study is to assess neonatal outcomes among passive smokers pregnant women.

Research question:-

- Does passive smoking affects the outcomes of labour?

SUBJECT AND METHODS:

A case- control study was used to assess labor outcomes among passive smoking pregnant women. The present study was carried out in the delivery room at Al-Azhar University Hospital in Damietta Governorate. The subjects consisted of pregnant women, attending the before mentioned setting , who fulfilling the following criteria: Age ranged between 18 -35 years, free from chronic diseases (diabetes mellitus and

pregnancy induced hypertension).Both primi and multigravida women.Having a live-born singleton fetus. For the passive smoking group to be directly exposed to passive smoking by a smoking husband or any relative or one of work colleagues, for the second group to be away from direct exposure to passive smoking by smoking husband or relative or one of work colleagues.

A purposive sample of women fulfilling the foregoing criteria was recruited from the study setting until the required sample size **(216)** was obtained. The sample size was determined by using the following equation ***(Dobson, 1984):***

$$\text{Sample size (n)} = \frac{Z^2}{\Delta^2} P(100 - P)$$

P : Prevalence of prenatal passive smoking complication (preterm labor) = 15%.

Z : A percentile of the standard normal distribution by 95% confidence level = 1.96.

Δ : The width of the confidence interval = 5.0.

The calculated sample size was **216** women. Due to the expected non-participating rate (10%), the final sample size was **216** women.

The total sample were divided equally into two groups:

1) 108 passive smoking women.

2) 108 non passive smoking women.

Two tools were used to collect the necessary data to achieve the aim of the study, they were:

Tool (1) Structured Interview questionnaire (appendix I):

A structured interview sheet was developed and constructed by the researcher after reviewing the literature and expertise' opinions. The sheet was designed in Arabic form to avoid misunderstanding.

The questionnaire consisted of three parts as the following:

Part I: This part included socio demographic data of woman and her husband such as "age, education, occupation, residence, house condition, and family income".

Part II: This part included items related to obstetric history such as "gravidity, parity, number of living children, as well as data about present pregnancy as; when woman starts antenatal visits, regularity of antenatal visits, number of antenatal visits .

Part III: This part included data about passive smoking were also included as type of smoking, smoker person, place of exposure to passive smoking and number of cigarettes exposed per day".

TOOL (II): Neonatal Assessment sheet : It was developed to collect the needed data such as "neonatal weight, length, head, and chest circumference immediately after birth and Apgar score ***(Virginia Apgar, 1952)*** and any complications occurred after birth".

Content Validity:

After the tool had been designed, it was tested for its validity and reliability. Then the pilot study was carried out on 10% of the sample in the study setting that were excluded from the study sample. The purposes of the pilot study were to test the applicability and clarify the feasibility of the study tools and it served to estimate the time needed to complete the tools. It also helped to find out any obstacles and problems that might interfere with data collection, based on findings of the pilot study, certain modification of the tools were done. Subjects included in the pilot study were excluded from the study subjects. Following this pilot study, the process of data collection was performed.

RESULTS:

Table 1: illustrates the distribution of the studied sample according to their socio-demographic characteristics. The mean age of women exposed to PS to the comparison group was (27.1±4.9: 24±4.9 respectively). Nearly two- thirds (59.3%) of women exposed to PS were from rural origin, while (60.2%) of non exposed women were of the urban origin. The great majority of women of both groups were a housewife. In relation to educational level, more than three-quarters of women exposed to PS (71.3%) was basic education but(64.8%) of comparison group had secondary education. The mean crowding index for women exposed to PS was 1.5±0.5 while it was 1.36±0.48 for women not exposed to PS. Regarding monthly family income of exposed group to the comparison group (70.4% : 59.3%) reported that it wasn't enough .

Table 2: shows the obstetrical history of the studied sample. It illustrates that more than half of exposed group to the comparison group (55.6%: 90.7% respectively) had 1-3 pregnancies. Almost one fifth of exposed sample 18.5% while 8.3% of non-exposed sample had more than three deliveries. More than one quarter of exposed group 25.9% compared to 0.9% of non-exposed group had more than two abortions. Almost 13.0% of women exposed to PS compared to 3.7% of non-exposed women had dead children.

Table 3: illustrates that 97.2% of women exposed to cigarette passive smoking. More than half of them (57.4%) the smoker were their husband, three-quarters of them exposed to PS at home. Regarding frequency of exposure more than half of them (57.4%) exposed to 5-10 cigarette smoking per day.

Table 4: shows the distribution of neonate's condition after birth. The table shows that two-thirds of newborns whose mothers exposed to PS58.3% while only 7.4% of newborns of non-exposed mother their Apgar score at first minute were less than 7. One-fifth of newborns whose mothers exposed to PS 17.6% compared to only 1.9% of newborns of non-exposed mothers their APGAR score at fifth minute were less than 7. Half of newborns of exposed group 50.9% while 5.6% of whose mothers not exposed had low birth weight. One third of newborns of exposed sample 30.6% while only

3.7% 0f newborns of non- exposed sample had crown- heel length less than normal. Head circumference for newborns of passive smoke to those of compared mothers (56.5%-4.6% respectively) less than normal. Regarding chest circumference for newborns whose mothers exposed to PS compared to whose mothers not exposed was (54.6%-4.6% respectively) less than normal. More than one fifth 21.3% of newborns whose mothers exposed to PS compared to 5.6% of newborns of non-exposed mothers had complications after birth. The same table reveals that there was statistical significance between maternal exposure to PS during pregnancy and newborn Apgar score (P=.000), neonatal anthropometrics (P=.000) and newborn complications after labor (P=.000).

Table (1): Distribution of the studied women as regards their socio-demographic characteristics (n=216).

Socio-demographic characteristics	Pregnant women exposed to PS (n=108)		Pregnant women are not exposed to PS (n=108)	
	No.	%	No.	%
Age (years)				
18-25	32	29.6	53	41.7
26-30	60	55.6	45	49.1
31-35	16	14.8	10	9.3
Mean	27.1±4.9		24±4.9	
Residence				
Urban	44	40.7	65	60.2
Rural	64	59.3	43	39.8
Marital status				
Married	104	96.3	105	97.2
Divorced	2	1.9	2	1.9
Widow	2	1.9	1	.9
Occupation				
Housewife	94	87.0	89	82.4
Working	14	13.0	19	17.6
Level of education				
Illiterate	11	10.2	10	9.3
Basic education	77	71.3	7	6.5
Secondary education	12	11.1	70	64.8
University education	7	6.5	17	15.7
Post graduate education	1	.9	4	3.7
Crowding index				
Mean	1.5±0.5		1.36±0.48	
Monthly family income				
Not enough	76	70.4	6425	59.3
Enough	28	25.9	25	23.1
More than enough	4	3.7	19	17.6

Table (2): Distribution of the studied sample according to their obstetric history.

Obstetric history	Pregnant women exposed to PS (n=108)		Pregnant women not exposed to PS (n=108)		Significance	
	No.	%	No.	%	X^2	P
Gravidity						
1-3	60	55.6	98	90.7	34.03	.000*
>3	48	44.4	10	9.3		
Parity						
1-3	88	81.5	99	91.7	4.82	.028
>3	20	18.5	9	8.3		
Number of abortions						
None	49	45.4	98	90.7	53.6	.000*
1-2	31	28.7	9	8.3		
>2	28	25.9	1	0.9		
Number of living children						
1-3	94	87.0	99	91.7	.306	.580
>3	14	13.0	9	8.3		
No. of dead children						
No	94	87.0	106	98.1	9.7	.002*
Yes	14	13.0	2	1.9		

Table (3): Distribution of women exposed to PS according to smoking status.

Smoking status	Pregnant women exposed to PS (n=108)	
	No.	%
Type of smoking:		
Cigarettes	105	97.2
Shisha	3	2.8
Smoker person:		
Husband	62	57.4
Husband s family	22	20.4
Husband and his family	24	22.2
Place of exposure to PS		
House	83	76.9
Work place	7	6.5
Other	18	16.7
No. of cigarettes exposed per day:		
Less than 5	22	20.4
5-10	62	57.4
More than 10 or Shisha	24	22.2

Table (4): Relation between passive smoking and neonatal condition after birth.

Items	Pregnant women exposed to PS (n=108)		Pregnant women not exposed to PS (n=108)		Significance	
	No.	%	No.	%	X^2	P
Apgar score at 1st minute:						
-Less than 7	63	58.3	8	7.4	63.468	.000*
- >7	45	41.7	100	92.6		
Apgar score at 5th minute:						
-Less than 7	19	17.6	2	1.9	15.244	.000*
- >7	89	82.4	106	98.1		
Birth weight (gm):						
-Low birth weight	55	50.9	6	5.6		
-Normal	51	47.2	96	88.9	55.136	.000*
-Over birth weight	2	1.9	6	5.6		
Crown-heel length(cm):						
-Less than normal	33	30.6	4	3.7		
-Normal	75	69.4	101	93.5	29.571	.000*
-Over than normal	0	.0	3	2.8		
Head circumference(cm):						
- Less than normal	61	56.5	5	4.6	68.422	.000*
-Normal	47	43.5	103	95.4		
- Over than normal	0	.0	0	.0		
Chest circumference(cm):						
- Less than normal	59	54.6	5	4.6	64.747	.000*
-Normal	49	45.4	103	95.4		
- Over than normal	0	.0	0	.0		
Complications after labor:						
-Yes	29	26.9	6	5.6	18.037	.000*
-No	79	73.1	102	94.4		
Complications occurred:						
-RDS	20	18.5	6	5.6	8.75	.003*
-Still birth	6	20.7	0	.0	6.171	.013
-Congenital anomalies	3	2.8	0	.0	3.042	.081

DISCUSSION:

Smoking has a harmful influence on the development of the fetus not only when the mother is an active smoker, but also when a pregnant woman is exposed to passive smoking. Of over 4200 constituents of tobacco smoke, the most harmful to the fetus as nicotine, carbon monoxide and reactive forms of oxygen. The direct influence of nicotine, changes in placental structure,formationofpathologicalhemoglobin(carboxyhemoglobin,methemoglobin,cyanmethemoglobin) result in persistent hypoxia of fetal tissue and a decreased supply of nutrients. ***(Samper MP, et al, 2012).***

There is a lack of robust data on PS in pregnant women, its reasons and outcome in Domitta governorate. Thus the aim of the present study was to assess neonatal outcomes among pregnant women who exposed to passive smoking PS, identify patterns, and problems encountered among women who were exposed during pregnancy. The results of our study indicated an adverse effect of PS exposure on length, weight, baby's head circumference, PROM and pre–mature birth. However, PS exposure in mothers during pregnancy causes to decrease of birth weight, length,

baby's head circumference but, increase the risk of PROM and pre-mature birth. In this study, 108 of mothers were exposed to passive smoking during pregnancy. But in numerous studies this percentage, has been reported, 35.9% in Brazil ***(Nakamura2004),*** 14% in Iran ***(Eftekhar2016)***13% in U.K **(*Ward 2007*),** 24.4% in Indian and 69.1% in China ***(Yao2009).***

In the present study results, there was a statistical significance between exposure to passive smoking during pregnancy and preterm birth. Our results showed, preterm delivery in women exposed to passive smoking was 50%, These results are consistent with several studies ***Fantuzzi G, et al.*** expressed that, Smoking throughout pregnancy, was powerfully relation to preterm delivery with a dose-response effect and pregnant women exposure to passive smoking ***(Fantuzzi et el 2007& Leonardi-Bee J,et al, 2008).*** The results of a study conducted in the US in 2010, showed that the risk of preterm delivery in women who expose to cigarette smoke, is 2.3 times more than others ***(Ashford 2010),*** This is consistent with a case-control study conducted on pregnant Italian women also showed a relationship between active and passive smoking during pregnancy and preterm delivery ***(Arffin F, et al,2012).***

Other studies of PS exposure and Prematurity have found varying results, from no effect to significant negative association. ***Dejin-Karlsson et al.*** concluded that women exposed to passive smoking at home or in the workplace face the risk was not significantly face the risk of preterm delivery (< 37 gestational weeks) ***(Nagahban T,et al,2011).*** However; the results of a few studies showed that PS exposure during pregnancy is not associated with an increased risk of preterm birth ***(Han JX,et al, 2006; WHO,2010).***

As regard fetal assessment after labor there was a statistical significant relation between maternal exposure to PS during pregnancy and low APGAR score at first and fifth minutes. In the same line with ***Amasha H. et al,2012*** , She confirmed that the smoking active or passive during pregnancy results in a significant increase in congenital neonatal malformation, fetal distress, poor APGAR score at first and fifth minutes. contrary no difference in APGAR score at 1st , 5th minutes. ***(Wahabi H A et al, 2013).***

Regarding anthropometric parameters of neonates as reported by ***Roquer et al.*** exposing a pregnant woman to cigarette smoke had a similar effect on the anthropometric parameters of neonates (birth weight, crown-heel length and head and chest circumference) as smoking<10 cigarettes a day. The study showed a reduction in body length, in the babies of passive smoker mothers by 1 cm compared with those of mothers who did not smoke ***(Faruque M. O., et al,1995).***

Also, a number of studies confirmed that exposure of pregnant women to passive smoking, cause to reducing the birth length and decrease of head circumference. In the present results, finding showed that exposure to PS in pregnant women was significantly associated with a higher cause of lower anthropometrics parameters

(birth weight, crown-heel length, head circumference and chest circumference).Tobacco toxins interfere with the trophoblastic and biological functions of fetal cells that regulate protein metabolism and enzyme activity, leading to an impact on fetal growth, with a reduction of weight, body fat, and many other anthropometric parameters ***(Jauniaux and Burton,2007).***

On the other hand, babies of mothers who were passive smokers also had lower anthropometric indices, but the differences were not statistically significant. Smoking during pregnancy causes symmetrical restriction of intrauterine growth. In a study neonates of mothers who were passive smokers achieved a 95 g lower birth weight and 1 cm lower head circumference than neonates of mothers who did not smoke, but the differences were not statistically significant ***(Król M, et al ,2012).***

nterest in the subject of relationship between maternal exposure to passive smoking and low birth weight developed in the 1980s when, relationship between active maternal smoking during pregnancy and LBW has been recognized ***(Stillman RJ, 1986).*** Several studies have shown that, maternal exposure to passive smoking, cause to decrease in birth weight. This reduction is variable, from1g to 253g Leonardi, et al. in a review article (a review of 58 studies), demonstrated that, exposure to passive smoking leads to reduction in mean birth weight ranged from 33 to 40 g. also there are several other studies that have shown significant reduction in birth weight in maternal exposure to PS ***(Leonardiet el.2011).***

Other results showed, infant's weight of maternal exposure to passive smoking during pregnancy was 251.26 gm. lower than non- exposed to passive smoking. There is a hypothesis that maternal exposure to passive smoking purposely to nicotine, may cause to low birth weight during a pathway of fetal hypoxia ***(Colak O,et el 2002).*** Elevated nucleated red blood cell counts are a marker of fetal hypoxia, and some studies have reported that this marker occurs among infants of maternal who exposure to passive smoking during pregnancy. It is estimated that, mean weight reduction is about 30 to 60 grams. However, some finding confirmed that, maternal exposure to passive smoking was not associated with low birth weight ***(Varvarigou 2010).***

Maternal exposure to passive smoking especially to nicotine, may cause to low birth weight during a pathway of fetal hypoxia.Also, carbon monoxide is associated with a number of serious complications during pregnancy,

Some studies have suggested that babies born to mothers that smoke during pregnancy weight on average 250g less than babies born to non-smoking mothers whilst babies born to (non-smoking) mothers who are exposed to PS may have a reduced birth weight of between 30 –40g ***(Royal College of Physicians, 2010).*** On the other hand, the effect of passive maternal smoking during pregnancy is less clear and has not been extensively studied ***Lee, N.L , et al, 2012, jaddoe VW, et al,2008 and Steyn K, et al,2006.***found no association between prenatal PS exposure and birth weight among babies after taking into account the effects of known predictors of birth weight.

The review by Leonardi-Bee also reported a reduction of 33 grams or more in birth weight ***(Leonardi-Bee et al., 2008)*** in passively exposed women; comparable to our findings in which there was a birth weight reduction of 306 grams and birth length reduction of 1.4 cm. Additionally, ***Tsui et al. (2008)*** reported a reduction in birth weight and birth length in infants (with high DNA damage) of non-smoking women exposed to passive smoking. In the present results, finding showed that there was a significant relation between maternal exposure to PS and neonatal adverse outcomes as respiratory distress, congenital anomalies, and stillbirth. So, it is in an agreement with ***Leonardi-bee et al,(2011)*** who found that Pregnant women who are exposed to passive smoking are estimated to be 23% more likely to experience stillbirth and13% more likely give birth to a child with a congenital malformation.

Exposure to substances like nicotine and carbon monoxide is associated with a number of serious complications during pregnancy, increased rates of growth restriction, premature rupture of membranes, miscarriage and stillbirth are some of the consequences of PS exposure and may result in increased perinatal morbidity and mortality ***(Adgent MA. 2006).***

Similarly, a review of 76 studies published in 2010 found that the infants of passive smoking exposed women were at increased risk of low birth weight, congenital anomalies, and smaller head circumferences ***(Salmasi G,et al, 2010).*** A further review of 19 studies that examined passive smoking exposure during pregnancy specifically among non-smoking women found significantly increased risks of stillbirth and congenital malformation ***(Leonardi-Bee J,et al,2011).*** The strong finding of a significant increase in NICU admission for women exposed to PS in the prenatal period is noteworthy. These women were 2–4 times more likely to experience complications than nonsmoking mothers. The most reported complications in the infant medical records were respiratory distress syndrome RDS ***(Kristin B. et al, 2010).***

A Swedish study of women who gave birth during 1983-1996 found that maternal smoking was significantly associated with adverse outcome (intrauterine growth retardation, a small head circumference, a low Apgar score at 5 min and stillbirths and neonatal deaths**)(*Kallen K, 2001*).** Though not conclusive, some studies have argued that maternal passive smoking may increase fetal and perinatal mortality and increase the risk of some congenital abnormalities ***(Royal College of Physicians 2010).***Therefore, increasing the knowledge and skills necessary to reduce the exposure of pregnant women exposed to passive smoking, is a practical approach, which, certainly would be, more effective implementation of programs for prenatal care.

CONCLUSION:

Based on study findings, it can be concluded that:

Exposure to passive smoking during pregnancy is associated with increased fetal adverse outcome such as preterm birth and low birth weight, lower APGAR score at 1st minute, lower neonatal anthropometrics, RDS and still birth.

RECOMMENDATIONS:

Based on the results of the present study, the following recommendations were suggested:

Reducing the prevalence of smoking in homes and work place is the most effective way to prevent PS exposure especially during pregnancy; Maternity nurses should recognize that screening of PS should be a part of antenatal care when taking social history, they may be effective in detecting cases exposed to PS.; Providing husbands and other household members with advice and information about the risks and the adverse effect of PS exposure on pregnancy outcome as well as strategies to reduce PS in the home; Implement educational strategies to reduce PS exposure at home and workplace.

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نتائج حديثى الولادة بين السيدات الحوامل المدخنات سلبيا

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الخلاصة

الكثير على علم كاف بأضرار التدخين على صحة المدخنين ، ولكن قليلا من الاهتمام يعطى لأضراره على المحيطين بالمدخنين أو ما يعرفون بالمدخنين السلبيين. تشير التقديرات إلى أن 80.0٪ من النساء في مصر يتعرضن للتدخين السلبى داخل منازلهن.التدخين السلبى بين النساء الحوامل هو مشكلة اجتماعية كبيره ومشكلة صحية رئيسية في العالم. هدف هذه الدراسة هو تقييم نتائج حديثى الولادة بين السيدات الحوامل المدخنات سلبيا. أجريت هذه الدراسة في وحدة الولادة بمستشفى الأزهر الجامعى بمدينة دمياط الجديدة علي 216 امرأه حامل تم تقسيمهن الى مجموعتين: الأولى تتعرض للتدخين السلبى ،والاخرى لا تتعرض للتدخين السلبى، وقد جمعت تلك المعلومات عن طريق استمارة استبيان المقابلة الشخصية، وقد أظهرت نتائج الدراسة أن هناك حوالي(76.9%) من النساء يتعرضن للتدخين السلبى داخل المنزل،(57.4%) منهن كان المدخن هو أزواجهن. تم العثور على علاقة ذات دلالة إحصائية بين التعرض للتدخين السلبى و مقياس أبجر ،المقاييس الأنثروبومترية وكذلك المضاعفات بعد الميلاد لحديثى الولادة.وقد تخلصت الدراسه إلى أن التعرض للتدخين السلبى أثناء الحمل العديد من المضاعفات بعد الميلاد لحديثى الولادة.لذلك أوصيت الدراسة بتطوير ونشر الدورات التدريبية وبرامج التوعية والتثقيف للعاملين بالصحة وعيادات متابعه الحمل للتوعية بمدي خطوره تعرض المرأه الحامل للتدخين السلبى و كيفيه التصدي له