

Half of pregnant women are passive smokers, due to their partners

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Research has revealed the extent to which non-smoking pregnant women are affected by tobacco smoke.

As shown in a study carried out by researchers at 13 research centres in Asturias, Gipuzkoa, Sabadell and Valencia, over half of non-smoking pregnant women, 55%, are passive smokers. These women are under the effect of tobacco smoke to a considerable extent because a member of the household, their partner in particular, smokes at home. The result of

the study has been published in the journal *Science of the Total Environment*.

Within the INMA project that studies childhood and the environment, research has been carried out into the extent to which non-smoking [pregnant women](#) from Asturias, Gipuzkoa, Sabadell and Valencia are exposed to [tobacco smoke](#). To find out about tobacco exposure, researchers based themselves on urine samples collected during the medical check-up in the third trimester of pregnancy, and on the responses the women gave to a set of questions. They studied 1,783 women after rejecting another 480 who had displayed signs of being smokers according to their urine samples and the results of the surveys.

"Tobacco smoke has been found to have a detrimental effect on the foetus when pregnant women are under the effect of it," said Juanjo Aurrekoetxea; he is a researcher at the UPV/EHU's department of Preventative Medicine and Public Health as well as a participant in the research. Passive tobacco increases the risk of miscarriage. Nevertheless, the problem mainly affects the child's development; they tend to be smaller at birth and have lower cognitive development. In addition, and although to a lesser extent, these infants have a greater sudden death rate, and a greater risk of suffering cancer and respiratory disease in childhood as well."

Aware of the damage caused by tobacco smoke on the foetus, and as a result of the pressures brought to bear by people close to them and doctors, 10% of women smokers give up smoking when they become pregnant, although 22% of pregnant women continue smoking. If the 55% of non-smoking passive smokers are added to that, Aurrekoetxea stresses that "the message is not getting through. Health education is crucial for protecting women, and foetuses, in particular."

Cotinine, the tobacco marker

In the set of questions that the women in the study responded to, they were asked about the lifestyles that could be linked to tobacco, for example, in what situations they found themselves under the effect of tobacco smoke. To supplement the information gathered from these questions, the researchers measured the cotinine in the urine samples. Nicotine, one of the main chemical components of tobacco smoke, is metabolised immediately in the liver as soon as it enters the body; the compound, cotinine, which is produced from it, stays in the body for 15 to 20 hours. "Nicotine is not toxic for the body; it creates an addiction, but it is not particularly harmful. However, as it appears in high doses in tobacco, it is usually used as a marker to monitor tobacco consumption. In fact, when cotinine appears in the blood or urine, it indicates that there has been significant consumption of tobacco or passive exposure to it," explained Aurrekoetxea.

Fifty-five percent of the non-smoking women admitted they had been under the effect of tobacco smoke; 38.5 percent declared that leisure activities were responsible, particularly from exposure in bars and restaurants, and 24.7 percent said that it had been a member of the household who was a smoker.

Even though the exposure caused by members of the household was not the most common one, the cotinine level analysed in the urine revealed that the home was the main source of exposure, because the women who suffered it had the highest concentration of cotinine. "The greatest exposure happens when the woman's partner smokes at home," stressed Aurrekoetxea. When another person who was not their partner smoked at home, the level of cotinine detected in the women was the second highest. Therefore, as Aurrekoetxea made it clear, "the home is the main source of exposure to tobacco smoke. People everywhere are saying tobacco is bad and that passive exposure is also bad, but people still fail to take the necessary measures not to smoke, or not to force pregnant women to breathe tobacco smoke either."

As the study was carried out between 2004 and 2008, they were able to measure the effect of the law of 2006 banning smoking."Specifically, the level of cotinine in the pregnant women analysed in the study fell 16 percent. Well, it's something, and shows that measures of this type are effective," pointed out Aurrekoetxea.

Women from Asturias, Gipuzkoa, Sabadell and Valencia were studied, and even though the data from the four regions were processed together to produce the results, some differences and peculiarities were detected between one region and another. In the case of pregnant women in Gipuzkoa, exposure on the whole was found to be lower; in other words, there are fewer women passive smokers. However, the highest average levels of cotinine were measured among the women who had been exposed. "That took us by surprise," said Aurrekoetxea. We haven't looked into the reason for that, but we believe that it has to do with our region's climate and lifestyles."

More information: Aurrekoetxea JJ, Murcia M., Rebagliato M., Fernández-Somoano A., Castilla A.M., Guxens M., López M. J., Lertxundi A., Espada M., Tardón A., Ballester F., Santa-Marina L. 2014. "Factors associated with second-hand smoke exposure in non-smoking pregnant women in Spain: Self-reported exposure and urinary cotinine levels". *Science of the Total Environment*, 470–471: 1189–1196. [DOI: 10.1016/j.scitotenv.2013.10.110](https://doi.org/10.1016/j.scitotenv.2013.10.110)

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