Cancer is not just 'bad luck' but down to environment, study suggests

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Cancer is overwhelmingly a result of environmental factors and not largely down to bad luck, a study suggests.

Earlier this year, researchers sparked a debate after suggesting two-thirds of cancer types were down to luck rather than factors such as smoking.

The new study, in the journal Nature, used four approaches to conclude 10-30% of cancers were down to the way the body naturally functions or "luck".

Experts said the analysis was "pretty convincing".

Cancer is caused by one of the body's own stem cells going rogue and dividing out of control.

That can be caused either by intrinsic factors that are part of the innate way the body operates, such as the mutations that occur every time a cell divides, or extrinsic factors such as smoking, UV radiation and many others that have not been identified.

The argument has been about the relative importance of intrinsic and extrinsic factors.

The team of doctors from the Stony Brook Cancer Centre in New York approached the problem from different angles, including computer modelling, population data and genetic approaches.

They said the results consistently suggested 70-90% of the risk was due to extrinsic factors.

Dr Yusuf Hannun, the director of Stony Brook, told the BBC News website: "External factors play a big role, and people cannot hide behind bad luck.

"They can't smoke and say it's bad luck if they have cancer."
"It is like a revolver, intrinsic risk is one bullet.

"And if playing Russian roulette, then maybe one in six will get cancer - that's the intrinsic bad luck.

"Now, what a smoker does is add two or three more bullets to that revolver. And now, they pull the trigger.

"There is still an element of luck as not every smoker gets cancer, but they have stacked the odds against them.

"From a public health point of view, we want to remove as many bullets as possible from the chamber."

There is still an issue as not all of the extrinsic risk has been identified and not all of it may be avoidable.

'Convincing'

Kevin McConway, a professor of applied statistics at the Open University, said: "They do provide pretty convincing evidence that external factors play a major role in many cancers, including some of the most common.

"Even if someone is exposed to important external risk factors, of course it isn't certain that they will develop a cancer - chance is always involved.

"But this study demonstrates again that we have to look well beyond pure chance and luck to understand and protect against cancers."

Dr Emma Smith, from Cancer Research UK, said: "While healthy habits like not smoking, keeping a healthy weight, eating a healthy diet and cutting back on alcohol are not a guarantee against cancer, they do dramatically reduce the risk of developing the disease."