

Men aged 40-80 more likely to die after surgery than women of the same age, German study finds

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Middle-aged men are around 50% more likely to die after surgery than middle-aged women, according to new research being presented at

Euroanaesthesia, the annual meeting of the European Society of Anaesthesiology and Intensive Care (ESAIC), held online this year. The study of more than 100,000 non-cardiac patients at a leading German hospital found that mortality rates are higher in men in their 40s and 50s, as well as those in their 60s and 70s.

Some previous studies have found that sex affects the risk of complications after surgery but the results have been mixed. One¹ showed that men were at higher risk of complications and death after non-[cardiac surgery](#), while another² found that survival rates after some types of vascular surgery were lower in women than men. A third study³, of ICU patients, found no difference in [death rates](#) between the sexes.

To find out more, Dr. Dimislav Andonov and colleagues at the Technical University of Munich, Munich, Germany, analyzed data on 107,471 patients who had undergone non-cardiac surgery at the university's hospital between January 2014 and March 2020.

The procedures included a wide range of elective (planned) operations, such as hip replacements and cancer [surgery](#), and emergency surgeries, such as acute appendicitis and operations on victims of car accidents.

Outpatient and day cases were excluded, as were diagnostic procedures under anaesthesia, electroconvulsive therapy and patients that were in ICU before their operation.

The patients' average age was 53.8 and just over half (54.1%) were male.

No link was found between a patient's sex and the likelihood of them being admitted to the post-anaesthesia care unit or PACU for prolonged post-operative follow-up (Patients who stay more than four hours in the post-anaesthesia recovery room are defined as being in PACU).

Nor was there any link between sex and ICU admission, the need to be put on a ventilator or death before being discharged from hospital in those under 40.

But, in the 41-80 age group, men were more likely to be admitted to ICU, need ventilation and die before discharge than women of the same age.

Men aged 41-60 were 22% more likely to be admitted to ICU than women of the same age, 37% more likely to need ventilation and 54% more likely to die.

Those aged 61-80 were 20% more likely to be admitted to ICU than women of the same age, 31% more likely to need ventilation and 38% more likely to die.

After the age of 80, men's risk of ICU admission, ventilation and death reverted to being the same as that of women of the same age.

The researchers say: "This work demonstrates that [male patients](#) aged between 40 and 80 are at higher risk of death in the days after their operation. They are also more likely to be admitted to ICU and to need to be ventilated."

It isn't clear why the risks are higher for men aged 41-80 but one possibility is that higher rates of cardiovascular problems in males make surgical complications more likely.

Plus, the results may be skewed by the inclusion of trauma cases, such as injuries from car accidents, which are often life-threatening and are more common in men.

Male reluctance to go to the doctor may also play a part. Dr. Andonov

says: "Men undergo health checks less often than [women](#) and, thus, their health problems (for example cancer) may be discovered at a later stage.

"We plan to do more research to clarify the reasons. If we find that men's higher risk isn't being driven by trauma cases, we can think about how to best raise men's awareness of their health.

"And while it isn't yet clear whether males are at higher risk of cardiovascular complications, our findings do suggest that more attention should be paid to cardiovascular risk factors during pre-operative assessments."

More information: 1. Moodley, Y. and B.M. Biccard, *S Afr Med J*, 2015. 105(2): p. 126-9.

2. Grootenboer, N., et al., *Eur J Vasc Endovasc Surg*, 2011. 42(4): p. 510-6.

3. Zettersten, E., et al., *J Crit Care*, 2020. 55: p. 22-27

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