

# Mortality risk in transgender people twice as high as cisgender people, data spanning five decades suggests

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Transgender people are twice as likely to die compared to cis men and cis women, according to an analysis of national data from the Netherlands spanning five decades. The findings, published in *The Lancet Diabetes & Endocrinology* journal, indicate that the heightened mortality risk among transgender people did not decrease between 1972 and 2018, highlighting a pressing need for action to address these long-standing and significant health disparities.

Previous studies have reported increased [mortality rates](#) among transgender people, however, it was not known whether this trend has changed over the past few decades.

Lead author Professor Martin den Heijer, of Amsterdam UMC, the Netherlands, said: "The findings of our large, nationwide study highlight a substantially increased [mortality risk](#) among transgender people that has persisted for decades. Increasing social acceptance, and monitoring and treatment for [cardiovascular disease](#), tobacco use, and HIV, will continue to be important factors that may contribute to decreasing [mortality](#) risk in transgender people.

"Gender-affirming [hormone](#) treatment is thought to be safe, and most causes of [death](#) in the cohort were not related to this. However, as there is insufficient evidence at present to determine their long-term safety, more research is needed to fully establish whether they in any way affect

mortality risk for transgender people."

Transgender people can undergo medical therapies that bring about physical changes that more closely match their gender identity. These typically include gender-affirming hormone therapy and surgery. Transgender men receiving gender-affirming hormone therapy are usually treated with testosterone to promote the development of masculine features, while transgender [women](#) typically receive antiandrogens and oestrogens, which induce feminine physical characteristics.

The study cohort consisted of 4,568 adult transgender people (2,927 transgender women and 1,641 transgender men) who had attended the gender identity clinic at Amsterdam UMC between 1972 and 2018, and were receiving gender-affirming hormone treatment. Data was gathered from medical files on participants' age at the start of hormone treatment, the type of treatment, smoking habits, medical history, and the last date of follow-up. The average age at the start of hormone treatment was 30 years in transgender women and 23 years in transgender men. The average follow-up time in transgender women was 11 years and 5 years in transgender men.

The ratio of deaths among transgender men and transgender women compared to rates for the adult Dutch population were calculated using data held by Statistics Netherlands (CBS), which holds a record of all death of residents of the Netherlands. Where possible, mortality risk was divided into categories including cardiovascular disease, infection, cancer, and non-natural causes including suicides. Data on cause of death (if known) was available from 1996 onwards.

During follow-up, 317 (10.8%) transgender women and 44 (2.7%) transgender men died, resulting in an overall mortality of 628 deaths per 100,000 people per year.

Mortality risk was almost double among transgender women compared to men in the general Dutch population, and nearly three times greater compared to cis women (ratios of 1.8 and 2.8, respectively). Mortality risk did not decrease over the five decades included in the analysis.

Compared with cis men, transgender women had 1.4 times greater risk of death because of cardiovascular disease (1.4 mortality ratio).

Mortality risk was almost double for lung cancer (2.0 ratio), more than five times greater for infection (5.4 ratio), and nearly three times as high for non-natural causes of death (2.7 ratio). The greatest mortality risk from infection was associated with HIV-related disease, at nearly 15 times higher than for cis men (14.7 ratio). For non-natural causes of death, the greatest risk was suicide, at three times greater than for cis men (3.1 ratio).

Compared with cis women, transgender women were more than two times as likely to die of cardiovascular disease (2.6 ratio). They were three times more likely to die from lung cancer (3.1 ratio), almost nine times more likely to die from infection (8.7 ratio), and six times more likely to die from non-natural causes (6.1 ratio). Heart attacks accounted for the greatest risk of death from cardiovascular disease, at three times higher than for cis women (3.0 ratio). Mortality risk from HIV-related disease was close to 50 times higher than for cis women (47.6 ratio), while the risk of suicide was almost 7 times greater (6.8 ratio).

Mortality risk in transgender men was similar to cis men (1.1 ratio) but almost double compared to cis women (1.6 ratio). Mortality risk for transgender men did not decrease over the five decades studied.

Mortality risk in transgender men who started hormone treatment between 1990 and 2000 was two and half times as high as cis women (2.6 ratio). Compared to cis women, mortality risk for transgender men was more than double from 2000 to 2010 and 2010 to 2018 (2.1 and 2.4 ratios, respectively). Transgender men were at more than three times

greater risk of death from non-natural causes (3.3 ratio) than cis women. No increased mortality risk was observed compared with cis men.

First author Christel de Blok, of Amsterdam UMC, the Netherlands, said: "We found that most suicides and deaths related to HIV occurred in the first decades we studied, suggesting that greater social acceptance and access to support, and improved treatments for HIV, may have played an important role in reducing deaths related to these causes among transgender people in recent years. It was surprising that mortality risk was higher in transgender people who started gender-affirming hormone treatment in the past two decades, but this may be due to changes in clinical practice. In the past, health care providers were reluctant to provide [hormone treatment](#) to people with a history of comorbidities such as cardiovascular disease. However, because of the many benefits of enabling people to access hormone therapy, nowadays this rarely results in treatment being denied."

The authors acknowledge some limitations. The occurrence and causes of death were well documented, however, it cannot be ruled out that other factors not recorded in medical files may contribute to increased mortality risk. As there were relatively few deaths among transgender men in the cohort, analysis on cause of death was limited. Although the cohort included people with a wide age range, the population was relatively young. Analysis of data on transgender youth was also not possible as the young people in the cohort were very diverse, starting hormone therapy at different ages and stages of puberty. As this study focused only on transgender people who received treatment in the Netherlands, more than 90% of which were white, the authors say the data should be interpreted with caution in other regions.

Writing in a linked Comment, Dr. Vin Tangpricha of Emory University, U.S., who was not involved in the study, addresses the subject of gender-affirming hormone therapy, saying: "Increased publication of data on the

safety of gender-affirming hormone therapy in the transgender population, which is lifesaving for many people, is encouraging. Continued refinement of delivery of care for [transgender people](#) will help to improve the lives of a clinically vulnerable growing population."

On observed disparities between transgender women and transgender men, Dr. Tangpricha says: "Transgender men do not appear to have as significantly increased comorbidity following receipt of gender-affirming [hormone therapy](#) when compared with [transgender](#) women. These results could reflect the use of an established regimen of testosterone administration extrapolated from hypogonadal men. The differences could also reflect disparities in the access of health care, differences in the effect of sex hormones on cardiometabolic risk profile, differences in body composition, or societal factors. Future studies should examine which factors—hormone regimen, hormone concentrations, access to health care, or other biological factors—explain the increased risk of morbidity and mortality observed in [transgender women](#) as opposed to [transgender men](#)."

**More information:** Christel JM de Blok et al, Mortality trends over five decades in adult transgender people receiving hormone treatment: a report from the Amsterdam cohort of gender dysphoria, *The Lancet Diabetes & Endocrinology* (2021). [DOI: 10.1016/S2213-8587\(21\)00185-6](#)

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