Large meta-analysis suggests patient-reported outcomes complement traditional clinical assessment.

Despite advances in imaging, molecular profiling, and biomarkers, accurately estimating how long a patient with cancer is likely to survive remains challenging. Now, a large analysis involving data from more than 44,000 patients suggests that an important additional source of prognostic information may come directly from patients themselves.

"*We wanted to look beyond conventional factors that patients usually associate with illness, such as disease stage, blood work, and biomarkers,*" said Dr Ryan Huang, first author of the study from the Temerty Faculty of Medicine at the University of Toronto.

Clinical teams typically consider numerous variables—including tumour type and stage, biomarkers, and patient characteristics such as age, sex, and comorbidities—when estimating prognosis after diagnosis. Even so, providing an accurate prediction remains notoriously difficult.

Listening to the Patient

Patient-reported outcomes (PROs) are health measures provided directly by patients, without interpretation by a clinician. Questionnaires used to collect PROs ask about symptoms such as pain or fatigue, but also about emotional, social, and physical wellbeing, as well as how effectively patients are able to fulfil important roles in their lives, including work and family responsibilities.

"*We wanted to see if the patient voice could tell us more about their prognosis, how they may cope with illness, and ultimately their outcomes*," said Dr Huang, now a resident physician at the University of British Columbia in Vancouver.

The study, published in *JAMA Oncology*[1], involved a systematic review and meta-analysis of data from 69 prospective randomised clinical trials, including 44,030 adults with cancer. The analysis found that higher self-reported physical functioning and role functioning were associated with improved overall survival.

"*We found that a patient's subjective reports of their functioning—their ability to fulfil roles such as their jobs and family life—as well as their physical functioning, including their ability to perform everyday activities, were associated with survival,*" said Dr Huang.

What the Study Found

A subset of 31 trials that used the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) was analysed to explore associations between specific patient-reported outcomes and survival.

Higher scores for global health status, a measure of overall quality of life and wellbeing widely used in clinical research, were consistently associated with improved overall survival.

"T*he main score of the questionnaire, the global health status, how patients feel overall regarding their health, was associated with better survival for patients with all sorts of different tumours and cancers*," said Dr Huang.

Conversely, patients who reported a greater burden of symptoms—including pain, fatigue, loss of appetite, nausea, vomiting, and shortness of breath—generally had poorer overall survival.

"*Patients may subjectively feel certain symptoms before they even manifest as results on laboratory*

tests or imaging. PROs could therefore provide earlier insight into prognosis, and when added to cancer staging and biomarkers, they may provide additional information," said Dr Huang.

Why Patient Voices Matter

The study found that these PROs provided prognostic information across a broad range of cancers represented in the included trials, including lung, head and neck, pancreatic, colorectal, and prostate cancers. The findings suggest that patients' own reports of their health and wellbeing may capture important aspects of disease and function that are not fully reflected by traditional clinical assessments.

"*Our study really shows how important it is to listen to patients and not be fixated on CT imaging, MRIs, or biomarkers*," said Dr Huang. *"It's important to see the patient in front of us, really listen to them compassionately, and systematically collect these PROs using validated and accessible tools*."

The researchers emphasised, however, that PROs are not intended to replace existing approaches to cancer prognosis. Rather, they should be viewed as an additional source of information that complements established clinical factors, tumour characteristics, and biomarkers.

"*Patients may recognize changes in how they feel before those changes become apparent on laboratory tests or imaging*," said Dr Huang. "*When combined with cancer staging and biomarkers, PROs may provide additional information that helps clinicians better understand a patient's prognosis*."

Building Better Prognostic Models

The researchers now hope to determine whether incorporating PROs into existing prognostic models improves their predictive performance.

"*In the future, we would like to compare a model based only on clinical factors with one that combines clinical factors and patient factors to see whether there is additional prognostic benefit,*" said Dr Huang.

Such studies could help establish whether integrating PROs into predictive models provides a more accurate estimate of outcomes than relying solely on traditional clinical information.

"*Our study supports the systematic collection of these PROs in healthcare institutions*," said Dr Huang. "*It is important to use validated tools, provide accessible options, and listen carefully when patients describe concerning symptoms, because their experiences may reveal changes earlier than laboratory testing.*"

Beyond Predicting Survival

Although the current study focused on prognosis, the researchers suggest that routinely collecting PROs could have broader clinical value. Beyond helping estimate survival, these measures may enable clinicians to identify patients who could benefit from additional supportive care or closer monitoring during treatment.

"At a time when healthcare is rapidly embracing AI, biomarkers, and precision medicine, our findings highlight an equally important message: patients themselves remain one of the most informative sources of clinical data," said Dr Huang.

References

1. Huang RS, Chen D, Benour A, *et al.* **Patient-Reported Outcomes as Prognostic Indicators for Overall Survival in Cancer: A Systematic Review and Meta-Analysis.** *JAMA Oncology.* 2025;11(11):1303–1312. doi:10.1001/jamaoncol.2025.3153

About the Author

Victoria Forster, PhD is a cancer research scientist, childhood leukemia survivor and health writer. Passionate about engaging patients in research and healthcare systems, she earned her PhD in cancer biology in the U.K. and now works as the head of Patient Engagement at an academic hospital in Toronto, Canada.