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# Quality of life across three countries using a large-scale, fully digital survey of patients with prostate cancer

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## KEY FINDINGS & CONCLUSIONS

- In a large-scale fully digital survey across the USA, UK and Germany, participants with prostate cancer frequently had bad associations with treatment options not yet received and expected all treatments investigated in this survey to negatively affect QoL.
  - Active surveillance was perceived more positively than all other treatments across all three countries.
  - While overall negatively perceived in all three countries, chemotherapy was less negatively perceived in the UK than in the USA or Germany, which correlated with its more frequent use in the UK.
  - Radiation, brachytherapy and radiopharmaceuticals (e.g. radium-223, strontium-89, samarium-153 or radioligand therapy with PSMA) were more frequently viewed positively in the USA and the UK than in Germany.
- Clinical factors appear to drive differences in QoL between participants.
  - Self-reported overall QoL in participants with prostate cancer did not differ clinically meaningfully among countries despite variations in treatment strategies.
  - Participants with metastatic disease or two or more or severe comorbidities reported poorer overall QoL than those without metastatic disease or comorbidities.
  - Worse QoL among participants with metastatic versus non-metastatic prostate cancer highlights a need to improve QoL in these patients.
  - QoL interventions should target these at-risk groups to reduce symptom burden, tolerance of treatment and fear of therapy.

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## Introduction

- Incidences of prostate cancer vary widely across regions and have fluctuated in recent years in line with prostate-specific antigen (PSA) screening practices.
  - In 2020, the age-standardized incidence for men in higher human development index (HDI) countries<sup>2</sup> was 37.5 per 100 000 compared with 11.3 per 100 000 in lower HDI countries.<sup>2</sup> Mortality values were 8.1 and 5.9 per 100 000 in higher and lower HDI countries, respectively.<sup>1</sup>
- Mortality from prostate cancer has declined in higher HDI countries since the mid-1990s and patients with prostate cancer are living longer, owing to advances in diagnosis and therapy.<sup>3,4</sup> Patient experience with regard to care received and quality of life (QoL) is an important factor to consider both for decision-making and patient satisfaction.<sup>5-7</sup>
- QoL outcomes may differ among patients with prostate cancer, depending on multiple factors, such as the disease setting, the country in which they live and its healthcare system, and their treatment plan.
- Previous large-scale surveys assessing the journey of patients with prostate cancer were limited to a single country or did not use specifically designed digital tools.<sup>8-10</sup>
- We designed and performed the largest multinational digital survey to date, in terms of both scope and number of patients with prostate cancer, which captured data from patients across the entire disease continuum.

### Objective

- To understand differences in QoL expectations and experiences in patients with prostate cancer and varying disease burdens across three countries.

## Methods

- A novel, large-scale, self-report fully digital survey was designed by DontBePatient Intelligence, in collaboration with patient organizations and experts from the USA, UK and Germany.
- To avoid institutional and organizational bias, participants were recruited via social media (Facebook advertising, Google search engine marketing) and patient organizations (link sharing on their websites).
- Study recruitment opened on 9 February 2021, and the recruitment goal was reached in 60 days (10 April 2021), at which point the study was closed.
  - 15 511 patient respondents were included in the QoL analysis.
- Patients with non-metastatic and metastatic prostate cancer in the USA (N = 5455), UK (N = 5238) and Germany (N = 4818) completed the computer adaptive survey, which comprised an average of 83 questions; participants had the option of completing the survey in one session, or pausing and continuing with the survey at a later point.
  - The total number of questions in the survey was based on the number of therapies received, with each therapy linked to specific, detailed follow-up questions.
- For treatments not received or not yet received, participants rated their degree of positive versus negative views of each prostate cancer therapy type and its expected impact on QoL.
  - Participants were asked to what extent they agreed with the following statements for each treatment type:
    - I have bad associations with the therapy.
    - I would expect the therapy to have a negative impact on my QoL.
  - Responses of ‘yes, definitely’ or ‘yes, to some extent’ were deemed to be negative perceptions. Responses of ‘no, not so much’ or ‘no, not at all’ were considered to be positive perceptions.
- The survey also included questions to determine the impact on QoL of demographic and clinical factors, as well as disease and treatment history.
  - In this analysis, QoL was assessed using the validated Functional Assessment of Cancer Therapy–Prostate questionnaire [FACT-P],<sup>11</sup> in which a higher FACT-P score equates to a higher QoL.

### Statistical analyses

- Data analyses were performed using primarily descriptive and inferential statistics, where applicable.
- QoL predictors were examined using analysis of variance, t-tests and  $\chi^2$  tests.
  - Multivariate regression analyses examined the relative impact of one predictor while controlling for others.
- Rather than examining statistically significant differences between groups, clinically meaningful between-group differences in QoL (previously determined to be a FACT-P score of at least 10 points)<sup>12</sup> were assessed.

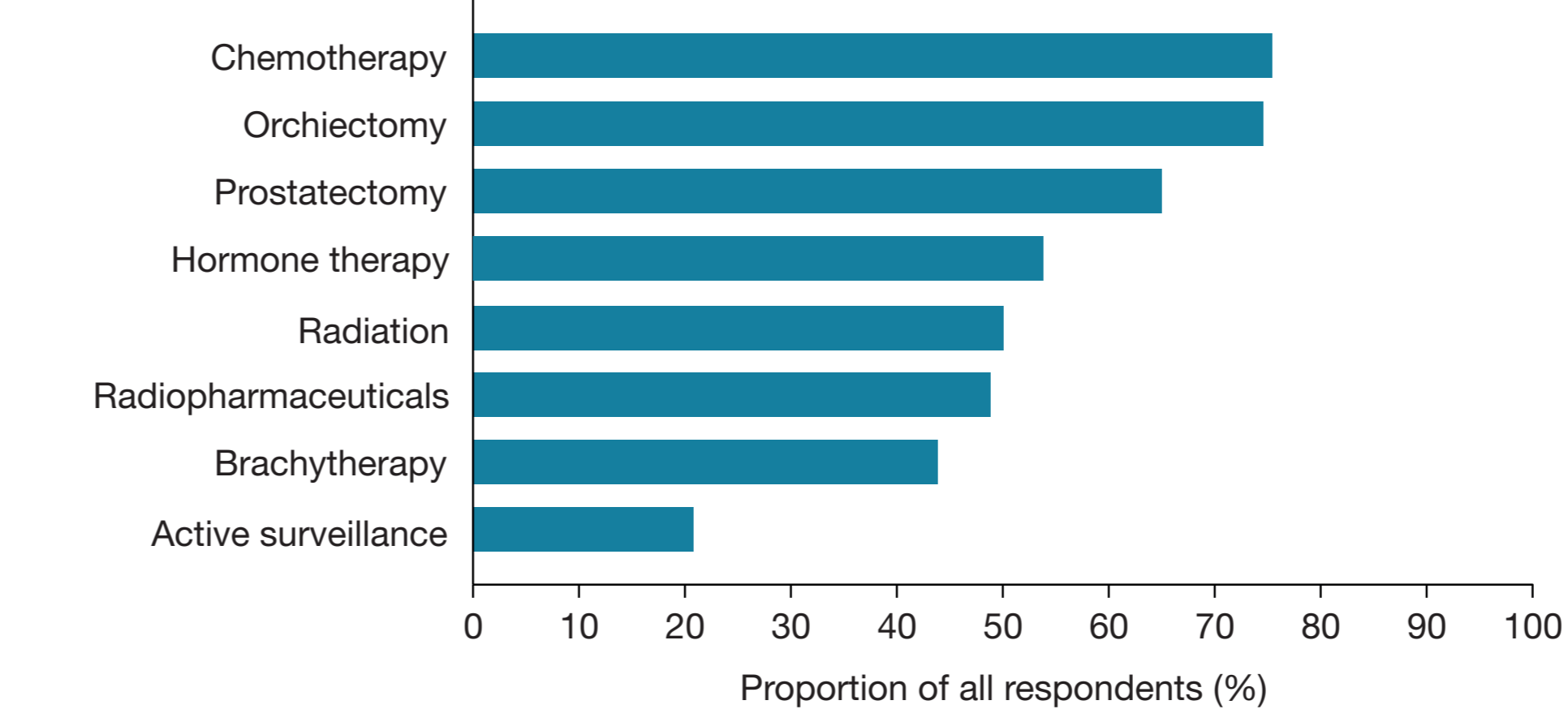
## Results

### Patient views on treatments and their expected impact on QoL

- Treatments were frequently viewed negatively by participants and the majority of participants across the three countries expected all treatments to have a negative impact on their QoL (Figure 1).
  - Active surveillance was viewed more positively than all other treatment modalities, with only 35%, 22% and 12% of participants in Germany, the USA and the UK viewing it negatively, respectively.
  - A lower proportion of participants in the UK (67%) perceived orchiectomy negatively than in the USA (79%) and Germany (80%).
  - Radiation was perceived negatively by more participants in Germany (57%) than in the USA (50%) and the UK (45%). Similarly, brachytherapy was viewed negatively by over half of participants in Germany (56%) versus 47% in the USA and 32% in the UK.
  - Hormone therapy (including androgen deprivation therapy and/or first- and second-generation androgen receptor pathway inhibitors, including abiraterone and enzalutamide) was viewed negatively by the majority of participants in the USA (56%) and Germany (68%), and 42% of participants in the UK.
  - Chemotherapy was viewed negatively by fewer participants in the UK (66%) than in the USA (79%) and Germany (82%).
    - Chemotherapy was more frequently used in the UK (38% in participants with metastatic prostate cancer) than in the USA (27%) and Germany (21%).
  - Radiopharmaceutical therapy (such as radium-223, strontium-89, samarium-153 or radioligand therapy with prostate-specific membrane antigen [PSMA]) was viewed negatively by a higher proportion of participants in Germany (66%) than in the USA (46%) and the UK (40%).

- Overall, across all three countries, chemotherapy and orchiectomy were viewed most negatively, followed by prostatectomy, then hormone therapy, radiation, radiopharmaceuticals and brachytherapy (Figure 2).

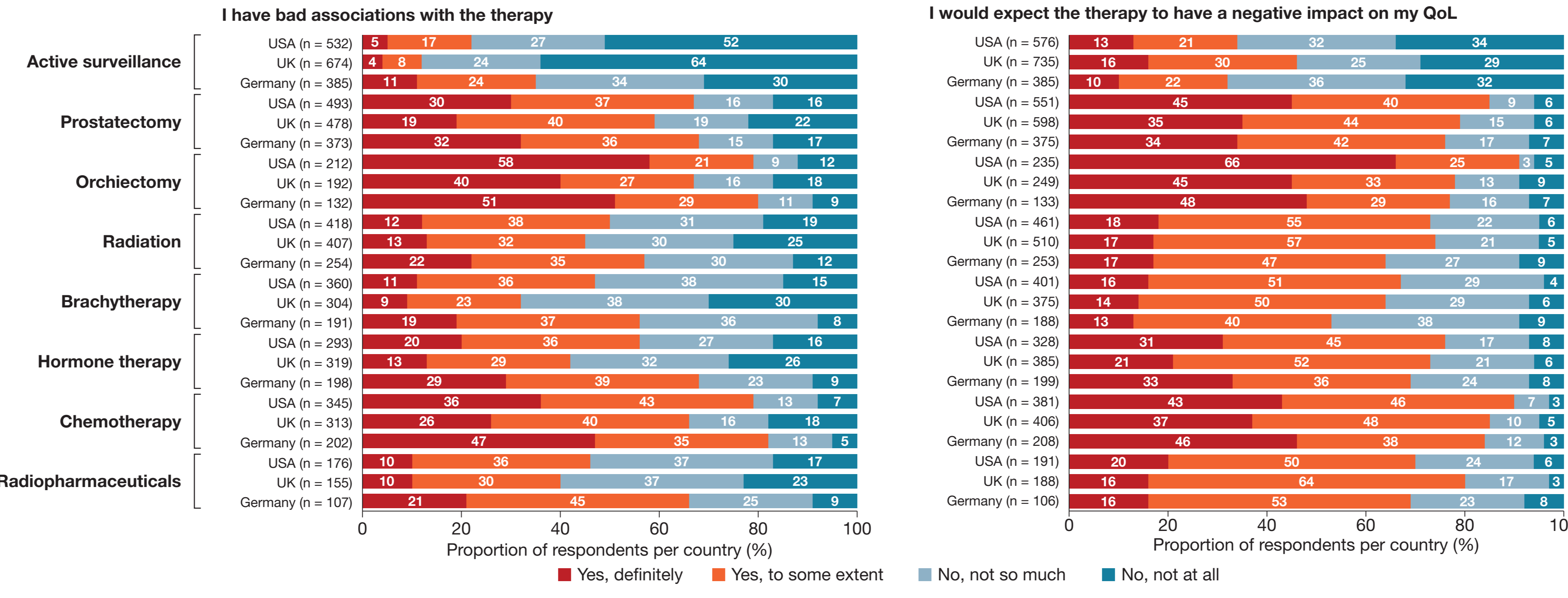
Figure 2. Overall proportion of survey participants with prostate cancer across the USA, UK and Germany with negative perceptions of different treatments and active surveillance



### Demographic and clinical predictors of QoL

- On univariate analysis, clinically meaningful differences in FACT-P scores were only seen between participants with non-metastatic versus metastatic disease, with no versus at least two comorbidities and without versus with severe comorbidities (diabetes, cardiovascular disease or kidney disease) (Table 1).

Figure 1. Survey participants ratings of associations with different treatments and active surveillance, and expected impact on QoL in the USA, UK and Germany



QoL, quality of life.

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## References

- Sung H et al. *Ca Cancer J Clin* 2021;71:209–49.
- United Nations Development Programme (UNDP). Human Development Report 2019. Available from: [hdr.undp.org/en/content/human-development-report-2019](https://hdr.undp.org/en/content/human-development-report-2019). (Accessed August 2022).
- Etzioni R et al. *Cancer Causes Control* 2008;19:175–81.
- Isodkov A et al. *Ann Intern Med* 2017;167:449–55.
- Resnick MJ et al. *N Engl J Med* 2013;368:436–45.
- Sanda MG et al. *N Engl J Med* 2008;358:1250–61.
- Shevach J et al. *Curr Urol Rep* 2019;20:57.
- The Royal College of Surgeons of England. NPCA Annual Report 2018. Available from: <https://www.npsca.org.uk/content/uploads/2019/02/NPCA-Annual-Report-2018.pdf>. (Accessed July 2022).
- Nguyen-Nielsen M et al. *Cancer Epidemiol* 2020;84:101823.
- Lehto US et al. *Eur J Oncol Nurs* 2015;19:220–9.
- Esper P et al. *Urology* 1997;50:920–28.
- Colla D et al. *Value Health* 2009;12:124–9.

<sup>a</sup>A higher FACT-P score indicates a higher QoL. <sup>b</sup>Comorbidities may include diabetes, cardiovascular disease and/or kidney disease. <sup>c</sup>p value calculated for 0 versus ≥ 2 comorbidities; <sup>d</sup>p value calculated for severe versus all other groups. FACT-P, Functional Assessment of Cancer Therapy–Prostate questionnaire. QoL, quality of life; SD, standard deviation.