Patient Preferences for Treatment Benefits in Metastatic Solid Cancers: A Systematic Literature Review

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PURPOSE

- To identify and characterize studies that quantify patient preferences for the treatment of advanced, metastatic, or treatment-resistant solid cancers.
- To identify and categorize the attributes included in these studies.
- To characterize how benefit attributes – in particular, Progression-Free Survival (PFS) and Overall Survival (OS) – are defined, measured, and presented to patients in these studies.

CONCLUSION

- Patient preference studies for treatment in solid/advanced cancers primarily included Risk attributes (averaging 2.7 per study) and Benefit attributes (averaging 2.1 per study), followed by Process and Cost attributes.
- There is significant variation in benefit prevalence across indications: for example, OS is the dominant endpoint in lung cancer studies (86%), whereas PFS and Quality of Life (QoL) are more prevalent in breast and prostate cancer studies.
- Operationalization of benefit attributes such as OS and PFS is characterized by a lack of standardization. Definitions range from clinical metrics (e.g., tumor markers like Prostate-Specific Antigen [PSA] levels to patient-centered language, e.g., “gained time,”) with units predominantly measured temporally (weeks/months/years).
- Heterogeneity across cancer indications and variation in attribute framing limit the transferability of patient preference data across oncology settings. While standardization efforts could improve comparability, high-quality de novo research will remain essential to capture the specific needs of patients across different cancer types.

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INTRODUCTION

- Despite widespread acceptance of the clinical endpoints OS and PFS by regulatory and Health Technology Assessment (HTA) bodies, there is a lack of synthesized evidence on how these endpoints are defined and operationalized in preference research in oncology.[1-3]
- This descriptive synthesis mapped the frequency and conceptualization of benefit attributes, alongside other attributes, to characterize the range of trade-offs evaluated in the studies.

STUDY DESIGN

- PubMed and the Cochrane Library were searched for studies published until 4 February 2025 (Supplementary Table #1).
- Two investigators screened abstracts and full texts; a third adjudicated disputes. Attributes and study characteristics were summarized descriptively.
- Included studies were full-length, English-language publications using quantitative trade-off methods (such as Discrete Choice Experiments, conjoint analysis) to elicit treatment preferences, specifically for OS and/or PFS, among patients with advanced, metastatic, or treatment-resistant solid cancers (full criteria in Supplementary Table #2).
- Study attributes were categorized into:
  - Benefits: favorable or positive outcomes
  - Risks: unfavorable effects, harms, or hazards
  - Costs: costs associated with the treatment
  - Processes: delivery logistics and methods
- For benefit attributes, information on definitions and value ranges was extracted.

RESULTS

- 686 studies were double-screened; 582 excluded after screening.
- 104 full-text studies were assessed for eligibility, with 38 included (Supplementary Table #3).
- **Cancer types:** the most studied cancer indications were breast (N = 9/38 [24%]), prostate (N = 8/38 [21%]), and lung (N = 7/38 [18%]) cancer (counting only studies where these were the sole focus), while (N = 14/38 [37%]) were classified as “other.”
- **Publication years**: all studies published 2015–2025.
- **Regions:** the most common countries were the USA (n = 15/38 [40%]), Germany (n = 9/38 [24%]), and the UK (n = 8/38 [21%]).

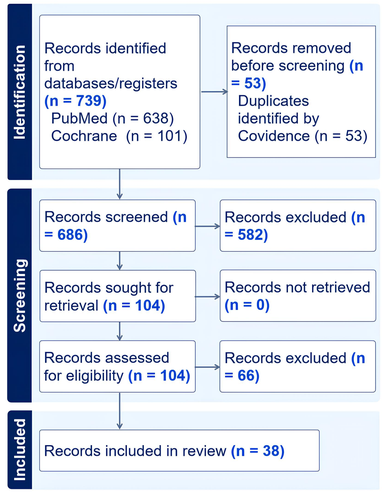

Figure 1. PRISMA flow diagram

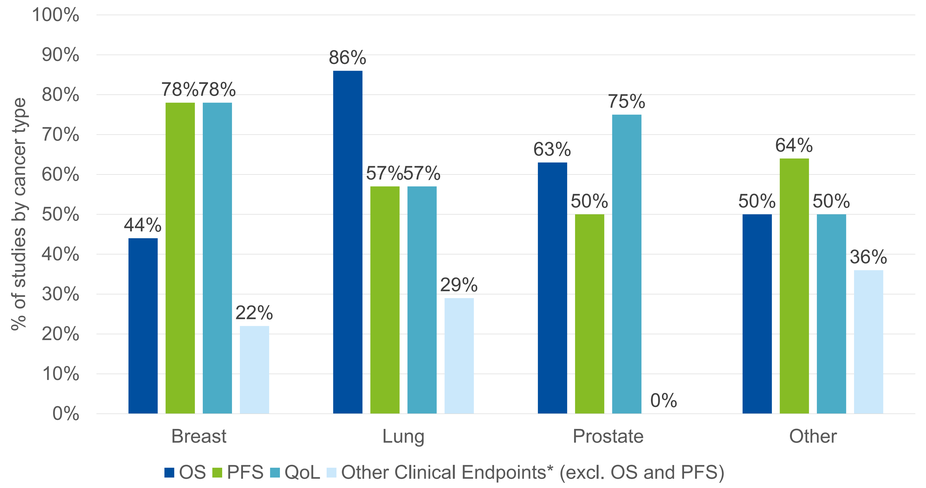

Figure 2. Prevalence of benefit endpoints within studies (%)

**Other clinical endpoints are measures used to judge a treatment's success, e.g. Objective Response Rate (ORR), Duration of Response, and Toxicity-Free Days*

Table 1. Frequency of Attribute Types Across Studies

Attribute type	Average per study	Median per study	Q1	Q3	SD
Risks	2.7	3.0	1.8	4.0	1.6
Benefits	2.1	2.0	1.3	2.0	1.1
Processes	1.1	1.0	1.0	2.0	0.8
Cost	0.3	1.0	1.0	1.0	0.4

Table 2. Frequency of Units Used By Attribute Type

Attribute type	Unit	Examples	% of attribute type
Risks	Categorical	Fatigue	43%
	Percentage	Chance of hot flashes	57%
Benefits	Categorical	Emotional balance	24%
	Percentage	Objective Response Rate (ORR)	23%
	Weeks/months/ years	Average PFS	53%
Processes	Categorical	Dosing regimen	90%
	Percentage	Likelihood of [treatment] being available in local hospitals	2.4%
	Weeks/months/ years	Median duration of therapy	7.3%
Cost	Categorical	Your monthly out-of-pocket costs	85%
	Cost in local currency	Monthly cost	15%

- Risks were the most frequent attribute type (avg 2.7 per study), followed by Benefits (2.1 per study); Cost was least common (avg 0.3).
- Benefits were primarily measured by time (53%), whereas Risks, Cost, and Process attributes were predominantly defined by categorical or percentage-based units (full definitions of all benefit attributes, including full definitions of OS/PFS, are in Supplementary Table #4).
- The prevalence of specific Benefits varied across indications: lung cancer studies most frequently featured OS (86%); PFS was most common in breast cancer studies (78%). Breast and prostate cancer studies were most likely to include QoL attributes (78% and 75%).

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ABBREVIATIONS

ORR: Overall Response Rate
OS: Overall Survival
PFS: Progression-Free Survival
PRISMA: Preferred Reporting Items for Systematic reviews and Meta-Analyses
PSA: Prostate-Specific Antigen
QoL: Quality of Life
SD: Standard Deviation

DISCLOSURES

PH, LMM, and BG are employees of Daiichi Sankyo. AJ, SD, and TT are employees of Kielo Research. Kielo Research received consulting fees from Daiichi Sankyo related to this work.

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