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Adverse events: does experience impact preferences? A Review of the Literature

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INTRODUCTION

- Patient preference methods have been used frequently to quantify the tradeoffs patients make between benefits and risks of health interventions
- Understanding how adverse event (AE) experience influences these preferences is crucial for optimizing treatment decisions and improving patient outcomes.
- This review aims to synthesize existing literature on the impact of AE experience on patient preferences, providing valuable insights for healthcare providers and policymakers.

OBJECTIVE

- To identify and synthesize the available quantitative evidence on how adverse event experience influences patient preferences, aiming to enhance understanding of decision-making processes between patients and healthcare providers.

METHODS

- A scoping literature review was conducted to identify and synthesize quantitative evidence on how adverse event (AE) experience influences patient preferences.

Search Strategy

- Initial searches were conducted in PubMed in January 2023 for papers published until December 31, 2022.
- The search was updated in July 2023 to include papers published until June 30, 2023, using OVID (EconLit, MEDLINE, Embase) and the Web of Science.
- Search terms included combinations of keywords related to discrete choice experiments, preference heterogeneity, risk, adverse events, and healthcare.

Inclusion Criteria

- Peer-reviewed papers written in English.
- Studies reporting results from stated preference methods [e.g., Discrete Choice Experiments (DCE), Best-Worst Scaling (BWS), Threshold Technique (TT), Conjoint Analysis (CA), swing weighting (SW)] in health and healthcare. Studies unrelated to health (e.g., food, environment) excluded unless addressing health and healthcare.
- Studies examining patient preferences, specifically including adverse events as attributes.
- Analyses of preference heterogeneity considering previous experience with adverse events.

Screening Process:

- Initial screening involved removing duplicates and titles with missing abstracts using EndNote and hand searching.
- Abstracts were reviewed by two authors. Articles were included for full-text review if accepted by both reviewers or if rejection could not be determined with certainty.
- Full-text screening followed the same procedure, with consensus-based decisions for ambiguous cases

RESULTS

Figure 1. PRISMA Flow Diagram

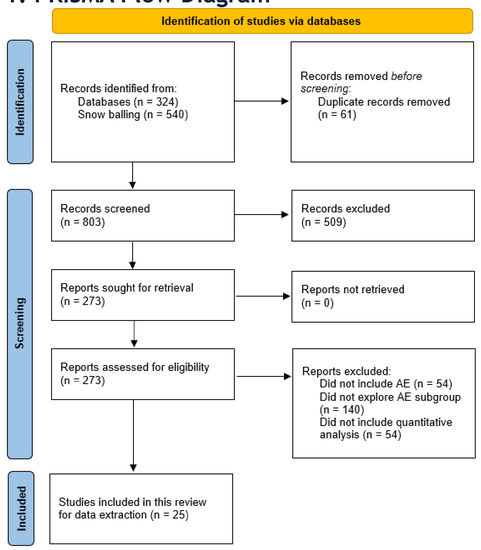


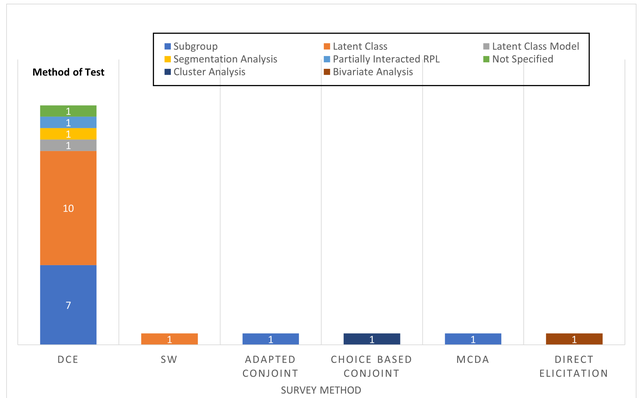
Table 1. Summary of Identified Studies (N = 25)

Paper	Country	Disease Area
Anezaki & Hashimoto (2017)	Japan	Perinatal services
Athavale et al. (2018)	US	Overactive bladder
Boeri et al. (2020)	US	Atopic dermatitis
Bywall et al. (2020)	Sweden	Rheumatoid Arthritis
Fifer et al. (2020)	UK	Myeloma
Flood et al. (2017)	US	Diabetes 1 and 2
Fraenkel et al. (2002)	US	Rheumatoid Arthritis
González et al. (2017)	US	Colon cancer
Hardtstock et al. (2020)	Germany	Hepatitis B
Hauber et al. (2009)	UK and US	Type 2 diabetes
Mansfield et al. (2017)	US	Multiple Sclerosis
Meghani & Knafl (2017)	US	Solid tumors
Moia et al. (2013)	Italy	Anticoagulant Therapy
Muhlbacher & Bethge (2015)	Germany	NSCLC
Mühlbacher et al. (2021)	Germany	Type 2 diabetes
Najafzadeh et al. (2014)	US	Anticoagulant Therapy
Ozdemir et al. (2020)	Singapore	Type 2 diabetes
Pacou et al. (2015)	UK	Chronic hepatitis C virus
Park et al. (2012)	S Korea	Metastatic RCC
Phillips et al. (2020)	Canada	Oncology (breast, colorectal, head and neck cancer)
Postmus et al. (2018)	UK	Multiple myeloma
Poulos et al. (2019)	US	Endometriosis pain
Banjara et al. (2022)	US	Type 2 diabetes mellitus
Janssens et al. (2022)	Europe	Multiple myeloma
Ozdemir et al. (2022)	Singapore	Dry eye

NSCLC = Non-small cell lung caner; RCC = renal cell carcinoma.

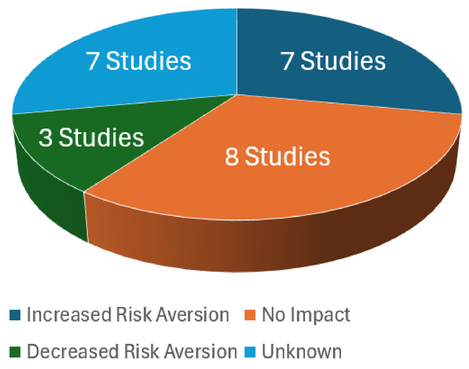
- Figure 2 compares different survey methods with the methods of test used. The x-axis lists the survey methods, and the y-axis shows the count of each method of test.
  - DCE was widely the most employed survey method (n = 21)
  - Most studies tested heterogeneity using latent class (n = 10) and subgroup analysis in RPL (n = 7), with other methods showing minimal or no data.
- Figure 3 shows the number of studies categorized by their findings on the correlation between AE experience and risk aversion
  - N = 7 studies found increased risk aversion; n = 3 studies found decreased risk aversion, n = 8 studies found neutral results, and n = 7 studies found inconclusive or uncertain results.

Figure 2. Distribution of Survey Methods and Test Methods



DCE= discrete-choice experiment; SW= swing weighting; MCDA= multi-criteria decision analysis; RPL = random parameters logit.

Figure 3. Distribution of the correlation between risk aversion and AE experience



DISCUSSION

- This review identified a limited number of studies that explored the relationship between adverse event (AE) experiences and patient preferences
  - **Increased Risk Aversion:** Seven studies found that patients with prior AE experience were less willing to accept the risk of the same AE when choosing treatments.
  - **Decreased Risk Aversion:** Three studies found that patients with prior AE experience were more willing to accept the risk of the same AE.
  - **No Correlation:** Most studies found no significant correlation between AE experience and risk tolerance, or the results were inconclusive.
- These mixed results suggest that the impact of AE experience on patient preferences is not straightforward and may depend on various factors, including the type of AE, the patient population, and the methods used to assess preferences.
- The lack of consistent findings underscores the need for further research to better understand these dynamics.

Future studies should aim to:

- Use stratified and, possibly, larger sample sizes to increase the power to detect differences.
- Consider analysing the AE experience subgroup by interacting with only the AE of interest
- Explore the impact of different types of AEs across various patient populations.
- Investigate the underlying mechanisms that drive changes in risk tolerance due to AE experiences.

CONCLUSION

- This review identified a limited number of studies that explored the relationship between adverse event (AE) experiences and patient preferences.
- The findings suggest that AE experience can increase, decrease, or have no impact on risk aversion.
- Understanding these preferences is crucial for healthcare providers to tailor treatments that align with patients' needs, goals, and values.
- Future research should continue to investigate this relationship to enhance patient-centered care and improve therapeutic strategies.

DISCLOSURES

- Marco Boeri is an employee of OPEN Health.
- Josh Coulter, Savanna Darnell, and Brett Hauber are employees of Pfizer.
- No funding were received for this study.

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