

Appendix 1 Search strategy

Databases searched: PubMed (MEDLINE), Cochrane Library (CENTRAL and Cochrane Database of Systematic Reviews), and Google Scholar.

Search date: July 8th, 2025. No date limits were applied unless otherwise specified.

PubMed (MEDLINE)

Coverage: database inception (1946) to July 8th, 2025.

Hits: 5,103

Search sets (PubMed syntax):

1. Procedure and specialty terms (Title/Abstract):

(Breast[tiab] OR Mammoplasty[tiab] OR Mammoplasty[tiab] OR Mastectomy[tiab] OR “Breast Implants”[tiab] OR “Breast Reconstruction”[tiab] OR “Breast Augmentation”[tiab] OR “Nipple Reconstruction”[tiab] OR Nipple[tiab] OR Mastopexy[tiab] OR “Oncoplastic Surgery”[tiab] OR “Acellular Dermis”[tiab] OR “Acellular Dermal Matrix”[tiab] OR “Gender Affirming Surgery”[tiab] OR “Facial Feminization”[tiab] OR “Facial Masculinization”[tiab] OR “Gender Affirming Mastectomy”[tiab] OR Phalloplasty[tiab] OR Vaginoplasty[tiab] OR “Cosmetic Techniques”[tiab] OR Esthetics[tiab] OR Abdominoplasty[tiab] OR Blepharoplasty[tiab] OR Facelift[tiab] OR Facial[tiab] OR Face[tiab] OR “Body Contouring”[tiab] OR “Hair Transplantation”[tiab] OR Injectables[tiab] OR “Laser Therapy”[tiab] OR Liposuction[tiab] OR Rhinoplasty[tiab] OR “Oculoplastic Surgery”[tiab] OR “Hand Surgery”[tiab] OR “Thumb Carpometacarpal Joint”[tiab] OR “Thumb CMC Arthroplasty”[tiab] OR “Distal Radius Fractures”[tiab] OR “Metacarpal Fractures”[tiab] OR “Dupuytren Contracture”[tiab] OR “Peripheral Nerve Injuries”[tiab] OR “Nerve Grafting”[tiab] OR “Cleft Lip”[tiab] OR “Cleft Palate”[tiab] OR “Cleft Lip and Palate”[tiab] OR “Brachial Plexus”[tiab] OR “Brachial Plexus Injury”[tiab] OR “Craniofacial Abnormalities”[tiab] OR Craniofacial[tiab])

2. Decision support terms (Title/Abstract):

(“Decision Support”[tiab] OR “Shared Decision Making”[tiab] OR “Decision Aid”[tiab] OR “Decision Aids”[tiab] OR “Decision Tool”[tiab] OR “Shared Decision Tools”[tiab])

3. Combined set:

#1 AND #2

Final PubMed query (single-line, paste-ready):

((Breast[tiab] OR Mammoplasty[tiab] OR Mammoplasty[tiab] OR Mastectomy[tiab] OR “Breast Implants”[tiab] OR “Breast Reconstruction”[tiab] OR “Breast Augmentation”[tiab] OR “Nipple Reconstruction”[tiab] OR Nipple[tiab] OR Mastopexy[tiab] OR “Oncoplastic Surgery”[tiab] OR “Acellular Dermis”[tiab] OR “Acellular Dermal Matrix”[tiab] OR “Gender Affirming Surgery”[tiab] OR “Facial Feminization”[tiab] OR “Facial Masculinization”[tiab] OR “Gender Affirming Mastectomy”[tiab] OR Phalloplasty[tiab] OR Vaginoplasty[tiab] OR “Cosmetic Techniques”[tiab] OR Esthetics[tiab] OR Abdominoplasty[tiab] OR Blepharoplasty[tiab] OR Facelift[tiab] OR Facial[tiab] OR Face[tiab] OR “Body Contouring”[tiab] OR “Hair Transplantation”[tiab] OR Injectables[tiab] OR “Laser Therapy”[tiab] OR Liposuction[tiab] OR Rhinoplasty[tiab] OR “Oculoplastic Surgery”[tiab] OR “Hand Surgery”[tiab] OR “Thumb Carpometacarpal Joint”[tiab] OR “Thumb CMC Arthroplasty”[tiab] OR “Distal Radius Fractures”[tiab] OR “Metacarpal Fractures”[tiab] OR “Dupuytren Contracture”[tiab] OR “Peripheral Nerve Injuries”[tiab] OR “Nerve Grafting”[tiab] OR “Cleft Lip”[tiab] OR “Cleft Palate”[tiab] OR “Cleft Lip and Palate”[tiab] OR “Brachial Plexus”[tiab] OR “Brachial Plexus Injury”[tiab] OR “Craniofacial Abnormalities”[tiab])

OR Craniofacial[tiab])) AND ((“Decision Support”[tiab] OR “Shared Decision Making”[tiab] OR “Decision Aid”[tiab] OR “Decision Aids”[tiab] OR “Decision Tool”[tiab] OR “Shared Decision Tools”[tiab]))

Cochrane Library (CENTRAL and Cochrane Database of Systematic Reviews)

Coverage: database inception to July 8th, 2025.

Hits: 374

Search sets (Cochrane Library advanced search):

1 (Breast OR Mammoplasty OR Mammoplasty OR Mastectomy OR “Breast Implants” OR “Breast Reconstruction” OR “Breast Augmentation” OR “Nipple Reconstruction” OR Nipple OR Mastopexy OR “Oncoplastic Surgery” OR “Acellular Dermis” OR “Acellular Dermal Matrix” OR “Gender Affirming Surgery” OR “Facial Feminization” OR “Facial Masculinization” OR “Gender Affirming Mastectomy” OR Phalloplasty OR Vaginoplasty OR “Cosmetic Techniques” OR Esthetics OR Abdominoplasty OR Blepharoplasty OR Facelift OR Facial OR Face OR “Body Contouring” OR “Hair Transplantation” OR Injectables OR “Laser Therapy” OR Liposuction OR Rhinoplasty OR “Oculoplastic Surgery” OR “Hand Surgery” OR “Thumb Carpometacarpal Joint” OR “Thumb CMC Arthroplasty” OR “Distal Radius Fractures” OR “Metacarpal Fractures” OR “Dupuytren Contracture” OR “Peripheral Nerve Injuries” OR “Nerve Grafting” OR “Cleft Lip” OR “Cleft Palate” OR “Cleft Lip and Palate” OR “Brachial Plexus” OR “Brachial Plexus Injury” OR “Craniofacial Abnormalities” OR Craniofacial):ti,ab,kw

2 (“Decision Support” OR “Shared Decision Making” OR “Decision Aid” OR “Decision Aids” OR “Decision Tool” OR “Shared Decision Tools”):ti,ab,kw

3 #1 AND #2

Note: In the Cochrane Library interface, the field tag ti,ab,kw searches title, abstract, and keywords.

Plain text: (Breast OR Mammoplasty OR Mammoplasty OR Mastectomy OR “Breast Implants” OR “Breast Reconstruction” OR “Breast Augmentation” OR “Nipple Reconstruction” OR Nipple OR Mastopexy OR “Oncoplastic Surgery” OR “Acellular Dermis” OR “Acellular Dermal Matrix” OR “Gender Affirming Surgery” OR “Facial Feminization” OR “Facial Masculinization” OR “Gender Affirming Mastectomy” OR Phalloplasty OR Vaginoplasty OR “Cosmetic Techniques” OR Esthetics OR Abdominoplasty OR Blepharoplasty OR Facelift OR Facial OR Face OR “Body Contouring” OR “Hair Transplantation” OR Injectables OR “Laser Therapy” OR Liposuction OR Rhinoplasty OR “Oculoplastic Surgery” OR “Hand Surgery” OR “Thumb Carpometacarpal Joint” OR “Thumb CMC Arthroplasty” OR “Distal Radius Fractures” OR “Metacarpal Fractures” OR “Dupuytren Contracture” OR “Peripheral Nerve Injuries” OR “Nerve Grafting” OR “Cleft Lip” OR “Cleft Palate” OR “Cleft Lip and Palate” OR “Brachial Plexus” OR “Brachial Plexus Injury” OR “Craniofacial Abnormalities” OR Craniofacial)

Google Scholar

Google Scholar served as a supplementary source (grey literature + capture missed items), and screened the first 100 articles. Search ran on July 8th, 2025

First 100 reviewed, duplicates and irrelevant studies found and thus not retrieved.

Due to character limits, the query was run using condensed concept blocks and iterative searches when needed. Search string:

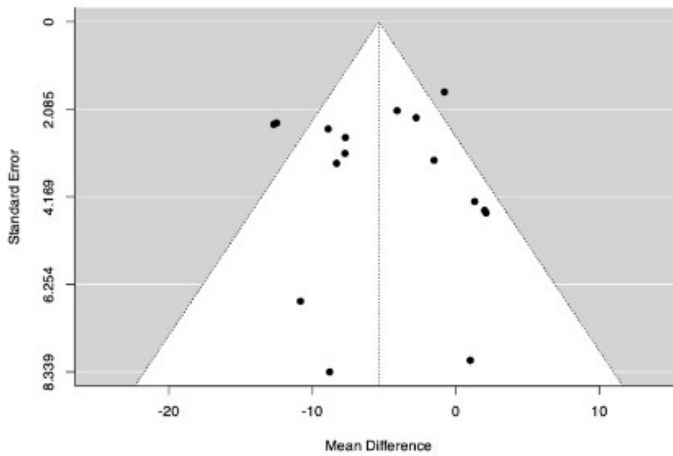
(“patient decision aid” OR “decision aid” OR “decision tool” OR “shared decision making” OR “decision support”) AND (breast OR mammoplasty OR mammoplasty OR mastectomy OR “breast reconstruction” OR “breast augmentation” OR nipple OR mastopexy OR oncoplastic OR “acellular dermal matrix” OR “gender affirming” OR phalloplasty OR vaginoplasty OR abdominoplasty OR blepharoplasty OR facelift OR rhinoplasty OR liposuction OR “body contouring” OR craniofacial OR “hand surgery”)

Table S1 CASP Appraisal of Qualitative Studies [N=1, Ter Stege et al. 2022 (50)]

CASP question	Judgment	Supporting rationale
1. Did the study address a clearly focused question?	Yes	Clearly aimed to develop a high-quality patient decision aid (PDA) for women with breast cancer considering immediate breast reconstruction, including development process, stakeholder involvement, and initial acceptability/usability evaluation.
2. Is the research design appropriate to address the objectives?	Yes	Used a multi-stage participatory development process consistent with decision-aid standards (e.g., needs assessment, content development, stakeholder engagement, usability testing), appropriate for tool development.
3. Was the recruitment strategy appropriate?	Yes	Included relevant stakeholder groups (patients with BR decision experience, healthcare professionals, patient organization representatives). Purposive sampling and stakeholder collaboration supported relevance and breadth of perspectives.
4. Was the data collected in a way that addressed the research issue?	Yes	Used complementary methods aligned with aims: semi-structured interviews (patient experiences), questionnaires (perspectives), and think-aloud usability testing (functionality/usability).
5. Has the relationship between researcher and participants been adequately considered?	Partially	Researchers were trained and conducted interviews/usability sessions, but reflexivity is limited (little explicit discussion of researcher influence, assumptions, or bias management), which matters in participatory development.
6. Have ethical issues been taken into account?	Yes	Reviewed by the Dutch Cancer Institute ethics committee (formal approval waived per local rules); informed consent obtained, supporting ethical conduct.
7. Is the data analysis sufficiently rigorous?	Yes	Thematic analysis conducted independently by two researchers with iterative consensus; systematic qualitative management (e.g., NVivo). Quantitative questionnaire data analyzed descriptively, appropriate to formative aims.
8. Is there a clear statement of findings?	Yes	Reports patient/HCP needs, stakeholder feedback, and iterative modifications; usability/acceptability findings are clearly described and tied to development steps.
9. How valuable is the evidence?	Moderately high	Strong, stakeholder-informed PDA development following international standards; however, evidence is formative and does not yet establish downstream efficacy (decision quality/outcomes), which is planned for later evaluation
10. Are limitations acknowledged or apparent?	Yes	Noted/implicit limits: selection bias (highly educated participants), small usability testing sample, inclusion of women who already decided about BR, uncertainty for lower educational levels, and Dutch context limiting generalizability; possible social desirability bias in feedback

Verdict of Ter Stege et al. 2022: This study presents a well-conceived and methodologically sound development of a PDA in line with international standards. It effectively incorporates stakeholder participation, qualitative insights, and iterative usability testing to produce a tailored tool aimed at supporting shared decision-making in breast reconstruction. Although it lacks outcome data on decision quality and patient impact, it provides a solid groundwork for future evaluative research. The transparency, rigor, and stakeholder focus make this a valuable contribution to patient-centered breast cancer care. BR, breast reconstruction; PDA, patient decision aid; HCP, Health care provider/professional.

1a. Decisional Conflict RE Model



Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	254.000	< .001
Begg and Mazumdar Rank Correlation	0.150	0.450
Egger's Regression	0.649	0.516
Trim and Fill Number of Studies	1.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

1b. Decisional Regret RE Model

Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	86.000	< .001
Begg and Mazumdar Rank Correlation	0.389	0.180
Egger's Regression	1.866	0.082
Trim and Fill Number of Studies	3.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

1c. Decisional Anxiety (HADS) RE Model

Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	2.000	0.020
Begg and Mazumdar Rank Correlation	-0.333	1.000
Egger's Regression	-0.985	0.325
Trim and Fill Number of Studies	0.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

1d. Decisional Anxiety (STAI) RE Model

Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	0.000	0.348
Begg and Mazumdar Rank Correlation	0.000	1.000
Egger's Regression	-0.359	0.720
Trim and Fill Number of Studies	0.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

1e. Knowledge Satisfaction RE Model

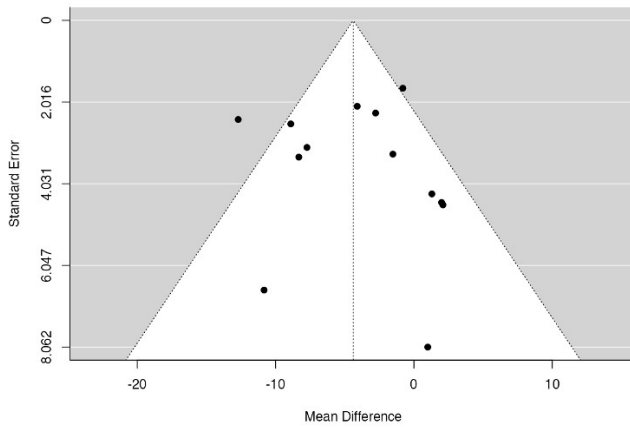
Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	0.000	0.094
Begg and Mazumdar Rank Correlation	0.333	0.750
Egger's Regression	1.438	0.150
Trim and Fill Number of Studies	1.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

Figure S1 Funnel plot for the Decisional Conflict random effects model and publication bias assessment of the random effects model for all eligible patient reported outcomes included for further analysis. (A) Decisional Conflict RE Model; (B) Decisional Regret RE Model; (C) Decisional Anxiety (HADS) RE Model; (D) Decisional Anxiety (STAI) RE Model; (E) Knowledge Satisfaction RE Model. [Hospital Anxiety and Depression Scale (HADS) and State-Trait Anxiety Inventory (STAI)].

2a. Breast Reconstruction PDA Decisional Conflict RE Model

2b. Breast Reconstruction PDA Decisional Regret RE Model



Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	107.000	<.001
Begg and Mazumdar Rank Correlation	0.154	0.510
Egger's Regression	0.685	0.494
Trim and Fill Number of Studies	1.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

Publication Bias Assessment		
Test Name	value	p
Fail-Safe N	77.000	<.001
Begg and Mazumdar Rank Correlation	0.643	0.031
Egger's Regression	2.170	0.030
Trim and Fill Number of Studies	2.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

Figure S2 Funnel plot for the Breast Reconstruction PDA Decisional Conflict random effects model and publication bias assessment of the Breast Reconstruction PDA Decisional Regret random effects model. (A) Breast Reconstruction PDA Decisional Conflict RE Model; (B) Breast Reconstruction PDA Decisional Regret RE Model. [PDA (Patient Decision Aid), Hospital Anxiety and Depression Scale (HADS), State-Trait Anxiety Inventory (STAI)].