Authors' objectives
To examine the literature that describes the motivations, outcome measures, physical and psychological well-being, and complications after reduction mammoplasty.

Searching
MEDLINE was searched between 1966 and September 1997 using the MeSH 'mammaplasty' and 'outcome measures'. The reference lists of the identified trials and reviews, and from the authors' private files, were also examined.

Study selection
Study designs of evaluations included in the review
The authors do not state any inclusion criteria relating to study design. Prospective and retrospective non-randomised cohort studies were included in the review.

Specific interventions included in the review
Reduction mammoplasty. Data on the type of surgical procedure were only available for nine of the included studies. Women underwent various different types of surgical procedure including the following: inferior; Strombeck; Skoogs; superomedial/inferior pedicle; inferior pedicle; multiple; and central/inferior pedicle. The amount of breast tissue removed, where stated, ranged from 200 to 830 g.

Participants included in the review
Women who underwent reduction mammoplasty for macromastia. The average age of the women included in the studies ranged from 18 to 40 years.

Outcomes assessed in the review
Trials were selected if the outcome measures assessed were related to change in the quality of life, cosmesis, physical symptoms, and the psychological effect of reduction mammoplasty.

None of the reviewed literature duplicated, in entirety, questions associated with motivation, outcome measures, or complications after surgery. Motivational factors such as relief of physical symptoms, wish for change in appearance, or increase in self-esteem, were identified either through specific questions or by patient suggestion. There were a considerable number of specific problems that were identified to have improved after breast reduction; these were therefore considered to be outcome measures. Most were related to a change in severity of physical symptoms. The outcome measures described in the chosen articles were listed in full.

The assessment of psychological well-being was addressed in a number of studies, which could be divided into two groups: those who assessed psychological well-being by the answers to specific questions, such as those related to increased well-being and decreased feelings of anxiety and depression; and those that used questionnaires that allowed both the psychological and physical effects of reduction mammoplasty to be expressed in more general terms, for example by using the SF-36 questionnaire. The complications associated with reduction mammoplasty were noted in seven of the articles reviewed.

How were decisions on the relevance of primary studies made?
One author reviewed all the identified titles and/or abstracts. It is not stated whether the reviewer was blinded to the results or source of the paper.

Assessment of study quality
The authors do not state that they assessed validity.

**Data extraction**

Only one individual assessed the material. However, to avoid bias, the observer was blinded to the publication details of the article (date, journal and title), the source of funding, and the conclusion of the trial from the abstract and the discussion.

The following data were extracted from the articles: patient characteristics; description of the intervention and amount of breast tissue removed; outcome measures; and complications. Where the improvement in physical symptoms was reported as a percentage decrease in symptoms after reduction mammaplasty, the authors categorised any improvement greater than 50% as a large improvement.

**Methods of synthesis**

How were the studies combined?

The data were presented in tabular format, supplemented by a narrative summary. The scarcity of data and the absence of construct consistency meant that the data could not be extracted for a meta-analysis.

How were differences between studies investigated?

Heterogeneity was not statistically assessed. However, the studies were grouped in the narrative summary according to the outcomes measured.

**Results of the review**

Seventeen publications met the criteria for inclusion in a meta-analysis. The articles were divided into three groups.

Group one (5 studies) described the results of consecutive data obtained from a cohort of women who completed a questionnaire before and after undergoing reduction mammaplasty. The results were then compared either with those from a control group of women, none of whom had a desire for breast surgery, or with population standards.

Group two (1 study) was essentially the same as group one, with the exception that the results were not compared with those of a control cohort.

Group three (11 studies) comprised consecutive data obtained from a cohort of women who completed a questionnaire after reduction mammaplasty. The questionnaires addressed both pre- and post-operative assessments simultaneously.

The number of patients in each study who were interviewed or received a questionnaire ranged from 8 to 1,042. The response rate ranged from 48 to 100%. The actual number of patients responding was not given, thus it is not possible to give an exact total number of patients included in the review.

All studies reported a large relief from physical symptoms or significant improvement in quality of life, general health status, or psychological distress.

Where reported, there was an increase in the amount, duration and type of physical exercise after surgery (6 studies).

The degree of satisfaction after reduction mammaplasty was determined in seven of the studies. The proportion of patients very or moderately satisfied with the procedure ranged from 78 to 95%. The percentage of dissatisfied patients ranged from 5 to 14%.

The outcome measures used to report any changes in cosmesis were variable and non-specific. In most cases, the studies (n=7) reported that patients wore tight clothes more often and had less difficulty purchasing clothing, or that they were happier with their appearance, after reduction mammaplasty.

Six studies reported a significant improvement in psychological well-being.
The complication associated with reduction mammaplasty were noted in seven of the seventeen articles reviewed. The most commonly noted complications were a change in nipple sensation, delayed healing, infection and haematoma formation. Other complications mentioned were problems with scar formation and the shape of the breast.

Authors’ conclusions
A systematic evaluation of patient-focused outcome measures demonstrated that a consistent improvement in physical symptoms was found across most studies. In addition, there was a high degree of patient satisfaction (78 to 95% very or moderately satisfied), and some improvement in body image and psychological well-being. However, although this review did identify consistent improvements in the patients’ quality of life after reduction mammaplasty, inconsistencies among study designs did not allow a formal meta-analysis to be undertaken.

CRD commentary
The authors stated their review question and the inclusion criteria clearly. The literature search was clearly described but was not thorough. In addition, the authors did not report any attempt to identify unpublished or grey literature. This narrow search strategy may have missed relevant studies, thus allowing the introduction of selection bias. The literature search was further restricted to those with English translations. No analyses were conducted to assess publication bias.

The validity of the individual studies was not assessed and there was no weighting or identification of the better quality studies. Only one author assessed the studies for relevance and extracted the data from the primary studies. However, attempts to avoid bias during data extraction included blinding the observer to the publication details of the article, the source of funding, and the conclusion of the trial. Details of the studies were tabulated and supplemented by a narrative discussion; most of the relevant information was included.

Heterogeneity between the studies was not statistically evaluated, although it was stated that the scarcity of the data and the absence of construct consistency did not allow the extraction of data for a meta-analysis.

The authors’ conclusions, that their review identifies consistent improvements in the patients’ quality of life after reduction mammaplasty, should be interpreted with caution owing to the limitations highlighted: the potential for selection bias; the lack of a validity assessment; and only a single author assessing the studies for relevance and extracting the data.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors state that their review provides compelling evidence of the need for a well-designed prospective study with the appropriate control groups, if physicians are to convince third-party payers that with regard to patient well-being, this is a highly valuable procedure.

Bibliographic details

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MeSH
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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.