Quality of life issues in aesthetic breast surgery

Health is multi-dimensional. Mortality, morbidity and cost are traditional health indicators, whereas outcomes research relates to quality of life and health-related quality of life. This article reviews the literature on quality of life issues in aesthetic breast surgery, highlighting the concepts of health and health outcome measures.

Outcomes research relates to quality of life and health-related quality of life. These tools can highlight the limitations of therapeutic interventions. They can illustrate mismatches between clinician's and patient's perceptions about disease, capturing additional aspects of the disease process which may be missed by more specific measures (Ben-Shlomo, 1999). Evaluation of quality of life is an important measured outcome in the field of breast surgery. Measuring health-related quality of life is also an important endpoint in aesthetic surgery. However, not all surgeons are familiar with the basic concepts and uses of quality of life assessments. This article reviews the existing literature on quality of life issues in aesthetic breast surgery.

An extensive literature search was conducted from January 1996 to November 2006 on Medline and January 2000 to August 2006 on Pubmed. Google scholar was used for non peer-reviewed literature. The Science of Health measurement (an educational series by the Tufts University School of Medicine) was referred to for understanding health outcome measures. Breast surgery, cosmetic surgery, aesthetic surgery and quality of life were the terms used for the literature search. Studies relating to cancer were excluded.

Health and its concepts

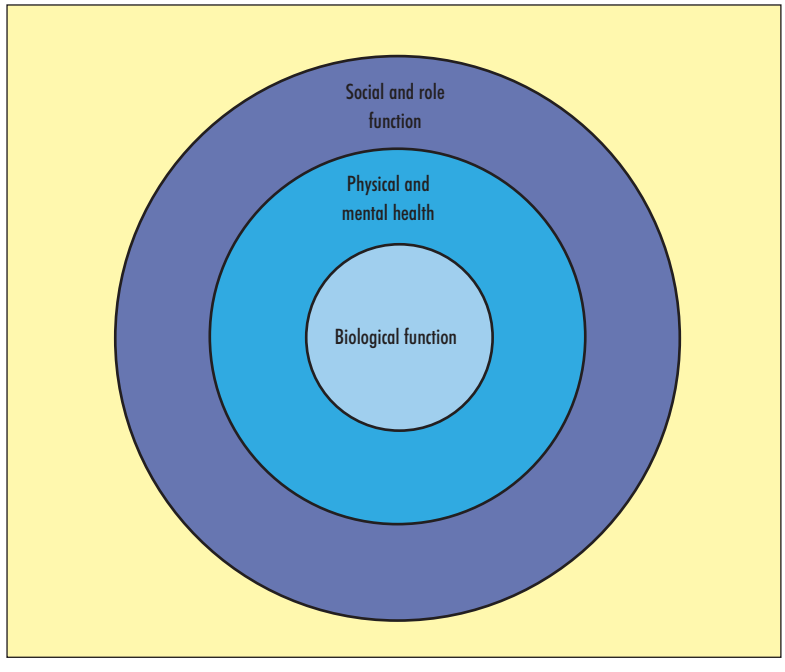
In 1948, the World Health Organization defined health as: 'A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity'. Health is multi-dimensional (physical, mental, social and role). The traditional health indicators are mortality, morbidity and cost. In addition to these, personal assessments of functional status and wellbeing, customers' reports, ratings of care, services and health plans are all making health care more patient focussed. Ware (1999) defined quality of life as: 'Quality of life is a state of mind… how good it is to you, and only you can decide that. If I want to know your quality of life, I have to ask you. I can't know it by observing you; I have to ask you. And that's the way we gather quality of life data. The health-related quality of life is that part of your quality of life that is more affected by disease and health care treatment.'

Ware (1984) defined health as a balance between biological role, physical and mental health and social and role function (*Figure 1*). Disruption in any of these dimensions of health can compromise functioning and wellbeing in other areas. Ill health can come from anywhere, but all of these states must be in balance in order to have perfect health.

Quality of life and health-related quality of life

It is important to understand the distinction between quality of life and health-related quality of life. Quality of life is a global concept with many themes, including overall satisfaction with life as well as the specific domains of life including family, community, work, and health. Health-related quality of life takes into account

Figure 1. Dimensions of health.



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the values of the individual, narrowing the focus to health concepts, such as functioning, that are affected by disease and treatment (Patrick and Erickson, 1993).

Outcomes research and health surveys

Outcomes research examines the end results of medical interventions, taking into account patients' experiences, preferences and values. This provides evidence on which to base clinical decisions. Health surveys are tools used for evaluating various concepts of health and provide a patient-based assessment of health. They are broadly categorized into generic and specific health measures.

Generic health measures

Generic health measures assess health concepts that represent basic human values and are relevant to one's health status and wellbeing, regardless of age, disease or treatment group (Stewart and Ware, 1992). Some generic health measures are shown in *Table 1*. As an example, the short form-36 (SF-36) (Ware and Sherbourne, 1992) was designed as a core general health measure. It takes 6–9 minutes on average to complete. Survey items capture eight health concepts (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health). Scale construction studies support several scoring options, including a profile of health states across the eight concepts, summary measures of physical and of mental health outcomes, and a single utility index of health. Published scoring algorithms include data quality checks. Results of extensive validity studies have been published, and norm-based scoring further improves the interpretation of scores.

Specific health measures

Specific measures focus on the particulars of a specific disease or diagnostic group (e.g. cancer), condition (e.g. congestive heart failure) or treatment (e.g. hip replacement), and are designed to capture areas of health specifically affected by that disease or treatment (Bungay and Ware, 1993). Some specific health measures are shown in *Table 2*.

Table 1. Generic health measures

European quality of life index
Medical Outcomes Study short forms (SF-36 and SF-12)
Nottingham health profile
Quality of well-being scale
Sickness impact profile
Health utilities index
Quality of life index
Subjective quality of life profile
General health questionnaire

Quality of life and breast surgery

The amount of aesthetic surgery involving the breast is increasing. Reduction, augmentation mammoplasty and correction of asymmetry are common aesthetic procedures performed on the breast. The quality of life issues surrounding aesthetic breast surgery are discussed below.

Reduction mammoplasty and quality of life

In 2007 members of the British Association of Aesthetic Plastic Surgeons performed 3402 reduction mammoplasty procedures in the UK (British Association of Aesthetic Plastic Surgeons, 2008). Macromastia interferes with a patient's physical, social and emotional health. Common complaints are pain, discomfort, poor posture and under-breast rashes. Depression, poor confidence, issues with undressing, fear of being teased and social embarrassment are some of the emotional and psychological issues. Breast reduction improves the quality of life, physical and psychosocial issues (Behmand et al, 2000; Hermans et al, 2005) along with a long-term improvement in health status and quality of life (Blomqvist et al, 2000).

Brown et al (2000) showed that patient satisfaction with breast reduction was high with major improvement in psychological wellbeing and physical benefits. All patients noted improvement with breast, neck and/or back pain, under-breast rash and shoulder grooving. Reduction mammoplasty offers substantial relief of macromastia-associated symptoms with a low complication and revision rate (Platt et al, 2003), and significant improvement in all quality of life factors (Spector et al, 2006).

In a randomized controlled trial Iwuagwu et al (2006a) assessed the effects of bilateral breast reduction

Table 2. Specific health measures

Breast	Breast evaluation questionnaire
	Breast chest ratings scale
	Derriford appearance scale
	Multidimensional body-states relations questionnaire
Psychosocial	Psychosocial adjustment to illness scale
	Courtauld emotional control scale
	Folkman and Lazarus ways of coping questionnaire
	Modified Folkman and Lazarus ways of coping questionnaire
	Profile of mood states
	Life Orientation Test-Revised – measure of optimism
	Hospital anxiety and depression score
Pain	Pain disability questionnaire
	McGill pain questionnaire
	Medical Outcomes Study pain measures

on anxiety and depression in women with macromastia. The hospital anxiety and depression score showed significant improvements ($P<0.001$) in symptoms of anxiety and depression along with improvement in symptoms of clinical depression. There were highly significant differences in quality of life and psychosocial functioning between groups in scores measured on the functional assessment of non-life threatening conditions version 4, EuroQoL and both mental and physical scales of SF-36 ($P<0.001$). The Eysenck personality questionnaire demonstrated a statistically significant increase in extroversion and emotional stability in the early treatment group. The authors further concluded that reduction mammoplasty significantly improved quality of life and increased extroversion and emotional stability (Iwuagwu et al, 2006b). Reduction mammoplasty also lead to physiological improvement in pulmonary function (Iwuagwu et al, 2006c).

Augmentation mammoplasty and quality of life

In 2007 members of the British Association of Aesthetic Plastic Surgeons performed a total number of 6497 augmentation mammoplasty procedures in the UK (British Association of Aesthetic Plastic Surgeons, 2008). Breast augmentation is the third most commonly performed cosmetic surgical procedure in the United States. In 2005, 291 000 breast augmentation procedures were performed in the USA (American Society of Plastic Surgeons, 2006).

Studies have shown improvement in the subjective quality of life and mental health after bilateral breast augmentation on the basis of indices of patient satisfaction and psychological evaluation. Chahraoui et al (2006), using the subjective quality of life profile and the general health questionnaire along with interviews, revealed the benefits of cosmetic surgery for the patients' subjective quality of life. The subjects' mental health and quality of life improved on a number of dimensions: physical health, pain, physical appearance, social life and inner life. The study also showed that improved physical health during the postoperative period was associated with the quality of the relations with the doctor whereas deterioration in health was associated with excessively high initial expectations concerning the relations with doctors and physical health.

Mental health benefits of aesthetic surgery

The mental health benefits of breast augmentation and reconstruction are supported by surveys but objective research does not support those claims. From 2001–6, five studies were published indicating an increase in deaths from suicide among women who had had breast augmentation (Brinton et al, 2006). Most studies compared women with implants to women in the general population, raising questions about whether women who choose plastic surgery have other traits (age, race, social class, low self-esteem) that make them more likely to commit suicide than other women. However, a study by scientists at the National Cancer Institute found a higher suicide risk among patients who had received breast implants compared to other plastic surgery patients, although the women were similar in terms of age, race, social class, health status and health habits (Brinton et al, 2006). These studies do not determine whether women choosing breast augmentation are less psychologically healthy than other women before surgery or if the mental health problems contributing to suicide are related to pain or other complications from breast augmentation.

In the only studies that objectively compared women before breast implants to 2 years later, women who underwent breast augmentation or reconstruction had the same or lower scores on most tests of self-esteem and quality of life 2 years after getting silicone breast implants as they had just before surgery (FDA Summary Panel Memorandum, 2005).

Psychosocial issues, psychologists and quality of life

Psychological factors are important in aesthetic surgery for a good outcome. Most people do well, but some do badly. It is important to pick the right people for surgery. Selecting patients for aesthetic procedures is a challenging task.

Aesthetic surgery has positive effects on psychological and psychosocial functioning including improvements in body image and quality of life. However, unrealistic expectations or a history of depression and anxiety are predictors of poor outcome. As a general rule, the greater the deformity and resulting improvement by surgery the higher the patient satisfaction.

Research studies (Honigman et al, 2004; Sarwer et al, 2005) suggest that patients who are dissatisfied with surgery may request repeat procedures or experience depression and adjustment problems, social isolation, family problems, self-destructive behaviours and anger toward the surgeon and his or her staff.

Honigman et al (2004) stated: 'While most people do well in terms of psychosocial adjustment after cosmetic procedures, some do not, and the field needs to be aware of this and to arrange screening for such individuals'. Diana Zuckerman stated: 'Cosmetic surgery affects patients' relationships, self-esteem and quality of life. These are fascinating issues for psychologists to look at from cultural and interpersonal phenomena to the mental health and self-esteem issues' (Dittmann, 2005).

According to David Sarwer, plastic surgery issues will affect clinical psychologists more and more, and the area will offer new roles for them such as conducting pre- and post-surgical patient assessments (Dittmann, 2005). He stressed that with the growing popularity of plastic surgery, it will become important

for psychologists to talk with patients about their appearance concerns and decide whether or not patients are suitable for cosmetic surgery.

Sarwer et al (2005) found that 1 year after receiving cosmetic surgery, 87% of patients reported satisfaction, including improvements in their overall body image and the body feature altered. They also experienced less negative body image emotions in social situations. In contrast their group has also shown a link between plastic surgery and poor post-surgical outcomes for some patients, particularly for those with a personality disorder, and also patients who have body dysmorphic disorder who repeatedly change or examine the offending body part to the point that the obsession interferes with other aspects of their life (Sarwer, 2001). Most body dysmorphic disorder patients who have cosmetic surgery do not experience improvement in their body dysmorphic disorder symptoms, often asking for multiple procedures. Psychologists can help plastic surgeons identify patients who may not adjust well psychologically or psychosocially after surgery. Empirically-based screening questionnaires are used in certain centres around the world to help plastic surgeons select cosmetic surgery patients likely to experience positive psychosocial outcomes. More psychologists will begin to examine issues related to cosmetic surgery because of its increasing popularity and the link between appearance, body image and many psychiatric disorders, such as eating disorders, social phobia and sexual functioning.

Cook et al (2006), in a systematic review on aesthetic surgery as an effective psychotherapeutic intervention, concluded that there is neither good evidence to justify elective cosmetic surgery in the absence of physical need nor there is strong enough evidence to justify withholding cosmetic surgery. They suggested several improvements in study designs whereby future prospective cohort studies could provide higher standards of evidence.

Service provision and quality of life

Apart from surgery, other factors also play a role in the patient's psychosocial adjustment.

Role of nurses

Patient education for women with breast prostheses is best done by nurses who are involved in educating women about issues related to breast surgery and in helping to promote psychosocial adjustment. Nurses should ensure that patients considering breast surgery understand the risks involved (Hall, 2004).

Health outcome measures specific to breast surgery

There are a few generic and specific health outcome measures used in breast surgery. Reliable and valid assessment instruments in cosmetic surgery are vital in assessing patient satisfaction with physical appearance. Appearance and satisfaction assessments are needed to adequately evaluate quality of life related to changes in the female breast across a variety of surgical interventions.

The breast evaluation questionnaire (Anderson et al, 2006) was designed to assess satisfaction with breast attributes. This is a 55-item with subscales including comfort when not fully dressed, comfort fully dressed, and satisfaction with breast attributes. The assessment is easy to administer and interpret and is recommended for assessing outcomes among breast augmentation patients, breast reconstruction patients, mastectomy patients, lumpectomy or breast-sparing surgery patients, breast reduction patients, and patients who have sustained trauma or injury to their breasts.

The Derriford appearance scale (Harris and Carr, 2001) is a psychometric scale for the evaluation of patients with disfigurements and aesthetic problems of appearance. It was designed and developed to provide an objective measure of the spectrum of psychological distress and dysfunction that is characteristic of disfigurements, deformities and aesthetic problems of appearance.

Ching et al (2003), in their literature review on measuring outcomes in aesthetic surgery, identified body image and quality of life measures to be of the greatest value in determining cosmetic surgery outcomes. These conclusions were based on a critical evaluation of the feasibility, validity, reliability and sensitivity to change of these measures. The multidimensional body-states relations questionnaire, a psychological assessment tool of body image, was selected as a potential candidate for further study. Breast chest ratings scale was said to be useful in the assessment of breast surgery. The Derriford appearance scale was also selected. The authors also recommend the use of a generic, utility-based quality-of-life instrument such as the health utilities index or EuroQoL.

Conclusions

Aesthetic surgical procedures are undertaken mainly to improve one's physical, physiological and psychosocial quality of life. The number of aesthetic breast surgery operations is on the rise. Reduction mammoplasty and augmentation mammoplasty have increased significantly in the last decade. Evaluation of quality of life and health-related quality of life are important measured outcomes. Applying them to the clinical practice of aesthetic breast surgery is vital for good surgical practice.

Patient selection plays a vital role in achieving the desired outcomes. There should be uniformity in the screening process. Psychological assessment is used as an important screening tool although in a minority. Currently there is no similarity in patient selection between different NHS trusts and between NHS and private care.

Patients may perceive psychological screening as an act of delaying the process of surgery. Nevertheless, the infor-

mation gathered from the screening can be valuable in reducing the number of unnecessary procedures with no patient benefit.

The authors strongly believe that it is essential for professionals and professional organizations to regulate the process involved in aesthetic breast surgery. A quality assured psychological screening process is essential with uniformity both in public and private sectors. Most importantly patient awareness of the risks involved cannot be overstressed. As clinicians we should not forget that we are patient advocates as well. **BJHM**

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American Society of Plastic Surgeons (2006) 10.2 Million Cosmetic Plastic Surgery Procedures in 2005 - Up 11%. www.plasticsurgery.org/Media/Press_Releases/102_Million_Cosmetic_Plastic_Surgery_Procedures_in_2005.html (accessed 25 March 2010)

Anderson RC, Cunningham B, Tafesse E, Lenderking WR (2006) Validation of the breast evaluation questionnaire for use with breast surgery patients. *Plast Reconstr Surg* **118**(3): 597–602

Behmand RA, Tang DH, Smith DJ Jr (2000) Outcomes in breast reduction surgery. *Ann Plast Surg* **45**(6): 575–80

Ben-Shlomo Y (1999) Health outcome measures. *J Neurol Neurosurg Psychiatry* **66**: 416

Blomqvist L, Eriksson A, Brandberg Y (2000) Reduction mammaplasty provides long-term improvement in health status and quality of life. *Plast Reconstr Surg* **106**(5): 991–7

Brinton LA, Lubin JH, Murray MC, Colton T, Hoover RN (2006) Mortality rates among augmentation mammoplasty patients: an update. *Epidemiology* **17**(2): 162–9

British Association of Aesthetic Plastic Surgeons (2008) Results of their annual audit for 2007: Over 32,400 cosmetic surgery procedures in the UK in 2007 www.baaps.org.uk/about-us/press-releases/280-over-32400-cosmetic-surgery-procedures-in-the-uk-in-2007 (accessed 24 June 2008)

Brown AP, Hill C, Khan K (2000) Outcome of reduction mammaplasty--a patients' perspective. *Br J Plast Surg* **53**(7): 584–7

Bungay KM, Ware JE (1993) *Measuring and Monitoring Health-Related Quality of Life: Current Concepts.* The Upjohn Company, Kalamazoo, Mich

Chahraoui K, Danino A, Frachebois C, Clerc AS, Malka G (2006) [Aesthetic surgery and quality of life before and four months postoperatively]. *Ann Chir Plast Esthet* **51**(3): 207–10

Ching S, Thoma A, McCabe RE, Antony MM (2003) Measuring outcomes in aesthetic surgery: a comprehensive review of the literature. *Plast Reconstr Surg* **111**(1): 469–80

Cook SA, Rosser R, Salmon P (2006) Is cosmetic surgery an effective psychotherapeutic intervention? A systematic review of the evidence. *J Plast Reconstr Aesthet Surg* **59**(11): 1133–51

Dittmann M (2005) Plastic surgery: Beauty or beast? *Monitor on Psychology* **36**(8): 30

FDA Summary Panel Memorandum (2005) FDA Summary Panel Information Mentor P030053. http://www.fda.gov/ohrms/dockets/ac/05/briefing/2005-4101b1_Tab-1_fda-Mentor%20Panel%20Memo.pdf accessed 16 March 2010

Hall A (2004) Understanding the benefits and risks of breast augmentation. *Nurs Times* **100**(2): 30–2

Harris DL, Carr AT (2001) The Derriford Appearance Scale (DAS59): a new psychometric scale for the evaluation of patients with disfigurements and aesthetic problems of appearance. *Br J Plast Surg* **54**(3): 216–22

Hermans BJ, Boeckx WD, De Lorenzi F, van der Hulst RR (2005) Quality of life after breast reduction. *Ann Plast Surg* **55**(3): 227–31

Honigman RJ, Phillips KA, Castle DJ (2004) A review of psychosocial outcomes for patients seeking cosmetic surgery. *Plast Reconstr Surg* **113**(4): 1229–37

Iwuagwu OC, Stanley PW, Platt AJ, Drew PJ, Walker LG (2006a) Effects of bilateral breast reduction on anxiety and depression: results of a prospective randomised trial. *Scand J Plast Reconstr Surg Hand Surg* **40**(1): 19–23

Iwuagwu OC, Walker LG, Stanley PW, Hart NB, Platt AJ, Drew PJ (2006b) Randomized clinical trial examining psychosocial and quality of life benefits of bilateral breast reduction surgery. *Br J Surg* **93**(3): 291–4

Iwuagwu OC, Platt AJ, Stanley PW, Hart NB, Drew PJ (2006c) Does reduction mammaplasty improve lung function test in women with macromastia? Results of a randomized controlled trial. *Plast Reconstr Surg* **118**(1): 1–6

Patrick D, Erickson P (1993) *Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation.* Oxford University Press, New York: 478

Platt AJ, Mohan D, Baguley P (2003) The effect of body mass index and wound irrigation on outcome after bilateral breast reduction. *Ann Plast Surg* **51**(6): 552–5

Sarwer DB (2001) Plastic surgery in children and adolescents. In: Thompson J, Smolak L, eds. *Body image, eating disorders and obesity in youth.* American Psychological Association, Washington DC: 341–66

Sarwer DB, Gibbons LM, Magee L et al (2005) A prospective, multi-site investigation of patient satisfaction and psychosocial status following cosmetic surgery. *Aesthet Surg J* **25**(3): 263–9

Spector JA, Kleinerman R, Culliford AT, Karp NS (2006) The vertical reduction mammaplasty: a prospective analysis of patient outcomes. *Plast Reconstr Surg* **117**(2): 374–81

Stewart AL, Ware JE, eds (1992) *Measuring functioning and well being: the medical outcomes study approach.* Duke University Press, Durham, NC

Ware JE (1984) Conceptualizing disease impact and treatment outcomes. *Cancer* **53**: 2316–26

Ware JE Jr (1999) John E. Ware Jr. on health status and quality of life assessment and the next generation of outcomes measurement. Interview by Marcia Stevic and Katie Berry. *J Healthc Qual* **21**(5): 12–17

Ware JE Jr, Sherbourne CD (1992) The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med Care* **30**(6): 473–83

KEY POINTS

- Health is multidimensional (physical, mental, social and role), and lack of an equilibrium among these entities leads to ill health. It is important to quantify these health indicators.
- The amount of aesthetic surgery involving the breast is increasing. Applying health outcome measures to the clinical practice of aesthetic breast surgery is vital for good surgical practice.
- Aesthetic surgery can have positive effects on psychological and psychosocial functioning, including improvements in body image and quality of life. Psychological factors are important in aesthetic surgery for a good outcome.
- Patient selection for aesthetic procedures is challenging and plays a vital role in achieving the desired outcomes.
- It is essential for professionals and professional organizations to regulate the process involved in aesthetic breast surgery. A quality assured psychological screening process is essential with uniformity both in public and private sectors.