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Abstract (150 words)

The Department of Health Review of the Regulation of Cosmetic Interventions (Keogh, 2013) highlighted the need for routine collection of patient outcome data. Patient reported outcome measures (PROMs) are standardised and validated questionnaires that patients complete to report the status of their health or satisfaction with care. PROMs allow clinicians to provide individualised care to patients that is consistent with patients' own self-reported needs. PROMs can inform service evaluation at procedure and practice level, which can improve the quality of care provided. A growing number of surgery/procedure-specific PROMs have been developed for cosmetic patients such as the Breast-Q, Body-Q and Face-Q. In order to provide evidence-based patient-centred cosmetic interventions, practices should incorporate the collection of PROMs into routine practice.

Key words

- **Patient reported outcome measures (PROMs)**
- **Patient perspective**
- **Cosmetic outcomes**
- **Service evaluation**

In 2010 the cosmetics industry generated £2.3 billion (non-surgical procedures accounted for 75% of this). By 2015, this is predicted to increase to £3.6 billion (Bunn et al, 2013; Schwitzer et al, 2014). Despite the increasing popularity of cosmetic procedures, a recent Department of Health Review of the Regulation of Cosmetic Interventions (Keogh, 2013) highlighted that there is a lack of outcomes data for cosmetic interventions. Overall the review identified a lack of evidence of the effectiveness and long-term benefits of cosmetic procedures for patients (Schwitzer et al, 2014). The review recommends that cosmetic practices should routinely collect patient outcome data and conduct psychological assessments of cosmetic patients to identify more clearly patients' needs and procedure outcomes.

How are healthcare procedures evaluated?

Historically patient satisfaction with healthcare and the success of healthcare procedures was based on the opinions of the clinician rather than the patient. However research indicates that there can be significant differences between patients and their clinicians when assessing the success and satisfaction of healthcare procedures (Dawn et al, 2004, Lattig et al 2013). Using clinician reported outcome measures alone, is no longer appropriate (Kenton et al, 2007). Obtaining the perspective of the patient is now vital for identifying the success of healthcare procedures (Mancuso, et al, 1997).

What are patient reported outcome measures (PROMs)?

Patient reported outcome measures (PROMs) are standardised and validated health-related questionnaires which patients complete before and after they have received a healthcare procedure

e.g. surgery, botox or a dermal filler (Dawson et al, 2010). The difference between the pre and post-procedure PROM data is used to identify the impact of the procedure on patients self-reported health status or satisfaction with care. PROMs are often paper-based but increasingly web-based PROMs are becoming available. Questions can relate to aspects of health, such as appearance satisfaction, quality of life, functionality or satisfaction with the medical procedure or received support. PROMs can be generic (assessing aspects of health or the service more generally) or surgery/procedure-specific (investigating patients' health in relation to the healthcare procedure received). Although generic PROMs can be useful for identifying general health outcomes, they do not capture data relating to experiences that are specific to a particular patient population or procedure. Therefore generic PROMs may lack the sensitivity to identify changes resulting from the procedure (Pusic et al, 2007b; Velanovich, 2000).

Analysis of the pre and post PROM data provides clinicians with a better understanding of the success of a cosmetic procedure and clinicians are able to identify if patients require further psychological or medical intervention. This data can also be used at a patient group level, e.g. identifying levels of satisfaction amongst patients who undergo a specific type of procedure (e.g. Botox) or at a practice level, e.g. identifying how a cosmetic practice overall is meeting its patients' needs. Therefore PROMs not only allow patients' healthcare to be individualised to their own self-reported needs, they also inform healthcare evaluation at an individual practice or procedure level which can raise the quality of care provided (Black, 2013).

What are the advantages of patient-reported compared with clinician-reported outcome measures?

A recent paper by Black (2013) outlined a number of key benefits of using patient reported measures. Firstly, the aim of any healthcare procedure is to improve patients' quality of life – the only people that can accurately assess this are patients themselves. Secondly, patient response rates are more likely to be higher, since they only have to complete their own PROM, whereas a clinician has to complete an outcome measure for every patient they see. Thus PROMs have the potential to reduce the workload of clinicians. Thirdly, asking patients to report their satisfaction with care or the received procedure reduces the likelihood of observer bias which is difficult to overcome, if clinicians are being asked to evaluate their own practice.

How are PROMs developed?

An effective PROM will have been through rigorous testing and psychometric evaluation with the specific patient population that it is intended for. Cano et al (2004) reports a three-stage development and validation process based on the guidelines outlined by the Scientific Advisory Committee of the Medical Outcomes Trust for the development of health outcome measures (Aaronson et al, 2002). This involves a step-by-step process for item generation, item reduction and psychometric evaluation. The PROM items (e.g. questions) should be based on a review of the literature of current PROMs available for the patient population, expert opinion and patient interview data. Drafts of the PROM should be reviewed by a small sample of patients to confirm the relevance and readability of the questions, and to determine the completion time and feasibility of using the PROM in clinical practice (Pusic et al, 2007a). The PROM is then tested and psychometrically evaluated in a larger sample of patients and items are removed based on the psychometric analysis. The final PROM is then completed by a large sample of the specified population to evaluate and confirm the psychometric properties of the instrument. Designing PROMs in collaboration with patients increases the likelihood that the questions will be relevant and understandable to patients. While it might seem reasonable for clinicians to create their own untested questionnaires (e.g. ad-hoc PROMs) to identify patient experiences, the psychometric

properties of these questionnaires have not been tested nor confirmed. Although ad-hoc PROMs may investigate relevant patient experiences, their validity (e.g. ability to measure what it intends to measure), reliability (e.g. ability to collect similar scores when the PROMs are completed in the same conditions but at different time points), and responsiveness (e.g. capacity to identify changes in scores over time) cannot be assumed without their psychometric qualities being formally tested with the specific cosmetic patient population that it is intended for (Pusic et al, 2007a).

What PROMs are available to evaluate cosmetic procedures?

When deciding which PROM to use with patients, it is important to consider the relevance of the questionnaire content in relation to the type of patients (e.g. patient condition or procedure type) that its use is intended for and how it will be used in clinical practice. "An appropriate measure is one that is supported by published evidence demonstrating that it is acceptable to patients, reliable, valid, and responsive (sensitive to change)" (Dawson et al, 2010). Identifying a PROM that has evidence of these psychometric properties with the patient group (e.g. botox patients) that it is intended to be used with will increase the likelihood that the PROM will be relevant to patients and responsive to any clinical changes.

Using the three-stage PROM development process set out by Cano et al (2004), the Q-Portfolio has been developed by a team led by Dr Anne Klassen, Dr Andrea Pusic and Dr Stefan Cano. The Q-Portfolio currently consists of three different PROMs (Breast-Q, Body-Q, Face-Q). The Breast-Q is designed for use with breast surgery patients (Pusic, et al, 2009). The Body-Q is designed for bariatric, obese, and cosmetic contouring surgery patients (Pusic et al, 2013) and the FACE-Q is designed for patients receiving any surgical or non-surgical facial procedure (Klassen et al, 2010). Each PROM has a number of different scales that measure the key aspects of outcome that have been outlined as important by patients themselves. The work of the Q-Portfolio team is a significant move forward for cosmetic clinicians to have access to surgery/procedure-specific PROMs to evaluate patients' needs and procedure satisfaction.

Similar PROMs are also being developed in burn care, after a recent systematic review identified the lack of burn-specific PROMs available to evaluate burn patients' needs (Griffiths et al, 2014). A team of Researchers at the Centre for Appearance Research (CAR) are using the three-stage PROM development process (Cano et al, 2004) to develop burn-specific PROMs for use in child, adolescent and adult burn care (Griffiths et al, 2014). This work, funded by the charities Restore: Burn and Wound Research and Dan's Fund for Burns, is being carried out with the input of a group of burn patients and health professionals working in this field.

With the increasing number of surgery/procedure- specific PROMs available to cosmetic clinicians, the issue now is to find a realistic way of incorporating the use of PROMs into standard cosmetic practice. Using online PROMs could provide a practical solution to collecting patient outcome data whilst not impinging on clinicians' often overstretched consultation time. For example, PROMs 2.0 (www.proms2.org) is an online PROMs programme developed in the NHS to collect outcomes data for any patient group. It is currently being used to evaluate surgical outcomes in a number of NHS trusts. Clinicians can determine which PROMs they want their patients to complete and they are uploaded into the online programme. Then patients are given access to the secure online system and automatic links (which take patients to the online PROMs they need to complete) are sent via email to each patient before and after they receive their medical procedure. Patients can complete the PROMs at home or in the clinic. There is also an option for both the clinician and the patient to receive automatic explanations of the patient's scores, which can reduce any previous time burden experienced by clinicians when entering data or analysing response scores (Wilson et al, 2014).

The future of PROMs in healthcare

Recently the NHS has taken steps to include PROMs in service evaluation. For example, the NHS Next Stage Review (Department of Health, 2008) highlighted the importance of using PROMs to evaluate healthcare services and to inform commissioning and regulatory decision making. In response to this, NHS England introduced the mandatory use of PROMs for all NHS trusts in 2009. This started with the first pilot phase of four patient groups: surgical intervention, knee surgery, hip surgery, varicose vein surgery and groin hernia repair. This process involved the identification of relevant PROMs for the specific patient group and then piloting the PROMs with the patient group to ascertain their relevance to the NHS and to evaluate the impact of PROM completion. Patients complete both generic and condition specific PROMs before and after receiving their surgery. Generic PROMs allow the comparison between different patient groups and condition specific PROMs tend to have greater face validity and sensitivity (of change in scores) (Black, 2013). Following these initial patient groups, additional pilot phases are planned for patients with coronary revascularisation, long-term conditions (e.g. asthma, stroke), dementia and cancer survivors (Black, 2013). If the pilot phases are successful, the collection of routine PROMs might be implemented across a wider range of NHS services.

PROMs are clearly becoming increasingly important in the evaluation of the NHS. However PROMs are not just an NHS priority; the importance of collecting patient outcome data is also outlined in the recommendations of the Department of Health Review of the Regulation of Cosmetic Interventions (Keogh, 2013). The PROMs developed by the Q-Portfolio team offer clinicians administering a number of different cosmetic procedures an effective way to identify patients healthcare needs and satisfaction with care, in addition to collecting service evaluation evidence. Collecting PROM data might seem unmanageable for some cosmetic practices due to time constraints. However online programmes such as PROM 2.0 offer a time efficient method, where patients can complete PROMs at home in their own time.

4 summary sentences

- The Department of Health Review of the Regulation of Cosmetic Interventions (Keogh, 2013) highlighted the need for routine collection of patient outcome data.
- Patient reported outcome measures (PROMs) are standardised questionnaires that patients complete to report the status of their health or satisfaction with care.
- Compared to generic PROMs, condition or procedure-specific PROMs are more likely to be sensitive to clinical change associated with cosmetic procedures.
- In order to provide evidence-based patient-centred cosmetic interventions, practices should incorporate the collection of PROMs into routine practice.

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