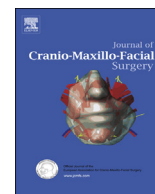




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Motivation for orthognathic treatment and anticipated satisfaction levels—a two-centre cross-national audit



Raphael Patcas^{a, *}, Susan J. Cunningham^b, Justin Shute^c, Timothy Lloyd^d,
Joachim A. Obwegeser^{e, f}, Lida Arjomand^b, Sujata Sharma^b

^a Clinic for Orthodontics and Paediatric Dentistry (Head: Prof. Theodore Eliades, DDS, MS, Dr Med Sci, PhD), Centre for Dental Medicine, University of Zurich, Plattenstrasse 11, 8032 Zurich, Switzerland

^b Department of Orthodontics (Head: Prof. Stephen Porter, PhD, MD, MBBS, BDS, BSc (Hons), FHEA), Eastman Dental Hospital, University College London Hospitals NHS Foundation Trust, 256 Gray's Inn Road, London WC1X 8LD, UK

^c Eastman Dental Hospital (Head: Dr. Tim Hodgson, BDS, MRCP (UK), FDS RCS (Eng)), University College London Hospitals NHS Foundation Trust, 256 Gray's Inn Road, London WC1X 8LD, UK

^d Department of Oral and Maxillofacial Surgery (Head: Dr. Tim Hodgson, BDS, MRCP (UK), FDS RCS (Eng)), Division of Growth and Development, Eastman Dental Hospital, University College London Hospitals NHS Foundation Trust, 256 Gray's Inn Road, London WC1X 8LD, UK

^e Limmatt Cleft- and Craniofacial Centre (Head: Prof. Joachim Obwegeser), Hardturmstrasse 133, 8005 Zürich, Switzerland

^f Department of Oral and Maxillofacial Surgery (Head: Prof. Dr. med. Martin Meuli), University Children's Hospital Zurich, Steinwiesenstrasse 75, 8032 Zurich, Switzerland

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ABSTRACT

Purpose: This audit investigated factors which motivate patients to seek orthognathic treatment, assessed how confident patients were that they would be satisfied with the outcome of treatment, and explored possible influencing factors.

Materials and methods: Questionnaires were distributed to pre-surgical patients at two centres (United Kingdom and Switzerland); questions asked what patients wished to gain from orthognathic treatment and how confident they were that they would be satisfied with treatment outcome. Gender, age and location were recorded as demographic variables, and type of malocclusion was also recorded.

Results: A total of 202 questionnaires were returned (UK, n = 149; Switzerland, n = 53). Reported motivating factors focused on improvements in aesthetics (specified and unspecified) (UK vs. Switzerland: 91.3% vs. 83.0%), function (72.5% vs. 66.0%), psychosocial health (51.7% vs. 20.8%), speech (4.0% vs. 7.5%), alleviation of pain (5.4% vs. 17%) and normalization of breathing (1.3% vs. 7.5%). No significant relationships were observed relative to patient age, gender or malocclusion. The anticipated satisfaction levels were generally high (86.5% vs. 89.9%).

Conclusion: Although the distribution of motivational factors varied between the two sites, it did not affect the anticipated satisfaction level. Patients were generally confident that they would be satisfied with their treatment outcome and that their reasons for seeking treatment would be addressed.

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1. Introduction

Orthognathic treatment refers to the management of the functional and aesthetic consequences of severe dentofacial deformity through a combination of orthodontics and maxillofacial surgery. It

aims to produce more harmonious facial and skeletal relationships and to improve occlusal functionality. Patients present to clinicians for a number of reasons (Cunningham and Johal, 2015); these may include concerns regarding facial or dental appearance, psychosocial issues and functional impairments associated with eating, speaking or breathing (Alanko et al., 2010).

Orthognathic treatment is an elective process. This accentuates the importance of understanding the patient's reasons for seeking treatment and their expectations, as these factors help clinicians to

* Corresponding author.

E-mail address: raphael.patcas@zzm.uzh.ch (R. Patcas).

determine whether the benefits of treatment outweigh the risks for each individual. The need to elicit and discuss patients' wishes is instrumental for post-treatment success (Oland et al., 2011); this is particularly important with regards to aesthetics, as patients may perceive themselves differently from how their clinicians see them (Chew et al., 2007). It is well established that post-treatment success is linked to pre-treatment motivation and expectations, and that unrealistic wishes may contribute to post-treatment dissatisfaction (Nurminen et al., 1999; Espeland et al., 2008; Oland et al., 2011). In order to fully understand the reasons for seeking orthognathic treatment, and the expectations associated with this, efforts have been made to categorize these reasons, for example by dividing expectations into physical and non-physical (Ryan et al., 2012b). However, less attention has been devoted to the question of whether the reasons for seeking orthognathic treatment are influenced by factors, including age, gender or type of malocclusion. There is no doubt that an enhanced understanding of these issues would be advantageous when managing the complex issue of patient expectations.

Another important aspect of care is patients' degree of confidence in the proposed treatment and their confidence in the surgeons and orthodontists involved in their care. Pre-surgical anticipation of problems has been suggested as a significant predictor of post-treatment dissatisfaction and poorer psychological outcome (Kiyak et al., 1988). However, failing to fully discuss with patients whether or not their reasons for seeking treatment will be addressed may result in disappointment and post-treatment dissatisfaction. Patients' degree of confidence in the outcome may well be affected by their confidence in the decision to proceed with treatment, their confidence in the procedure itself and in the physicians, the clinic or the health system carrying out the procedure. Clearly these variables will differ from one patient to another. Hence, the evaluation of patient confidence should not be restricted to a simple report, but should attempt to clarify whether the envisaged satisfaction is affected by location, age, gender or type of malocclusion. Moreover, conducting a two-centre audit in different countries allows a more thorough interpretation of any effects and strengthens the generalizability of the results.

The aims of this cross-national two-centre audit were therefore (1) to understand the factors that motivate patients to seek orthognathic treatment, (2) to measure how confident patients were that they would be satisfied with their treatment, and (3) to investigate the possible influence of demographic factors.

2. Materials and methods

2.1. Patients and procedures

This two-centre audit was conducted at the Eastman Dental Hospital, UCL, London in the UK and the Centre of Dental Medicine, University of Zurich in Switzerland. In both centres, all consecutive patients enrolled for orthognathic treatment were given a questionnaire. In the UK centre, this included all pre-treatment orthognathic patients attending the joint multidisciplinary clinic between June 2013 and January 2016. Data from the Swiss centre was collected between December 2014 and January 2016.

The questionnaire consisted of two sections: the first section asked patients to list up to five things that they would like to gain from treatment and was formulated as open-ended question. For the purpose of this paper, the responses to this question will be referred to as the 'motivating factors'. Prior to analysis, these motivating factors were categorized independently by two researchers, to ensure agreement. The second section of the questionnaire asked how confident the patient was that they would be satisfied with the outcomes of their treatment (score 0–100%). The

patient's age, gender, and type of malocclusion (Class II, Class III, anterior open bite, deep bite, facial asymmetry) were recorded, but no other data were collected to ensure anonymity.

All questionnaires were given to patients by clinicians who were familiar with the questionnaire and were part of the orthognathic team, and patients were asked to return completed forms to the reception staff. A researcher who was not involved in the patients' treatment received the anonymised data for statistical analysis. Ethical guidelines (World Medical Association [WMA], 2013) were strictly followed, and anonymization was performed in accordance with Swiss State and Federal Law (Swiss Federal Council, 2013; Federal Assembly of the Swiss Confederation, 2014) as well as adhering to the guidelines approved by the UK Department of Health and the National Health Services (Information Standards Board for Health and Social Care, 2013).

2.2. Statistical analysis

Data were analysed using SPSS software (IBM SPSS version 20, Armonk, NY, USA). All variables were descriptively reviewed, and continuous data were checked for normality using a Kolmogorov–Smirnov test. The participant's location (UK vs. Switzerland), age, gender or type of malocclusion were identified as potential influencing variables and associations with the confidence score were evaluated using Mann–Whitney *U* tests for categorical data and Spearman rank correlations for continuous data. In order to analyse the impact of the influencing variables on the reported motivating factors, Pearson chi-squared tests were computed and, wherever significant, odds ratios (OR) included. *p* values less than 0.05 were considered statistically significant.

3. Results

In total, 204 questionnaires were distributed, and the response was high (99.0%), with only 2 questionnaires not returned. In 18 cases, the patients did not rate their confidence, and in 5 cases demographic data were not collected. An overview of the percentage return and data collected is shown in Table 1.

Demographic data and details of malocclusions are given in Table 2 and Figs. 1 and 2, respectively. The age of the participants did not follow a normal distribution ($p < 0.001$ for both sites). The data for the different motivating factors and the confidence scores are shown in Table 3 and Figs. 3 and 4. The reported confidence scores were left-skewed and did not follow a normal distribution ($p < 0.001$ for both sites); therefore non-parametric analysis was undertaken.

In order to address the impact of the variables (i.e., location, gender, age and type of malocclusion) on the reported motivating factors, Pearson chi-squared tests were performed; the results are presented in Table 4. It was apparent that location had some significant effects on what patients wanted to gain from orthognathic treatment. Patients in the UK centre were significantly more likely than their Swiss counterparts to state that they would like

Table 1
Data collection.

Data	UK	Switzerland
Distributed questionnaires (n)	149	55
Recollected questionnaires (n)	149	53
Questionnaires containing information on patient (n) "influencing variables"	144	53
Questionnaires containing a confidence score (n)	131	52
Questionnaires containing information on motivations (n)	149	53

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