Article:
Kettle, J.E. orcid.org/0000-0002-2776-1243, Marshman, Z. orcid.org/0000-0003-0943-9637, Winchester, L. et al. (3 more authors) (2020) Patient narratives of orthognathic treatment for facial asymmetry: a qualitative study. British Journal of Oral and Maxillofacial Surgery. ISSN 0266-4356

https://doi.org/10.1016/j.bjoms.2020.09.003

Patient Narratives of Orthognathic Treatment for Facial Asymmetry: A Qualitative Study

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Abstract

Objectives: To explore patient experiences of orthognathic treatment for facial asymmetry and adaptation to facial changes post-surgery. **Design:** Qualitative, cross-sectional. **Setting:** Two UK sites. **Participants:** Patients after treatment for non-cleft asymmetry. **Methods:** Patients were identified using patient databases and clinical notes and approached. Individual interviews and photo elicitation were conducted with fifteen patients (aged 19-40 years). These covered experiences prior to treatment, during treatment and post-surgery. Interviews were transcribed and thematic narrative analysis was undertaken. **Results:** Participants were largely positive about their orthognathic treatment. The following themes were identified: preoperative (becoming aware, negative impacts of asymmetry, committing to treatment, establishing expectations); pre-surgery orthodontics and inpatient experiences (challenges and coping strategies, preparedness, support and shared experiences); postoperative (surgery as 'worth it', positive impacts of treatment, adapting to facial change). Undergoing orthognathic surgery was portrayed as a journey, involving recognisable narratives (treatment unfinished, threat of liminality, treatment as resolution, treatment as transformation). **Conclusions:** Patient experience of facial asymmetry is associated with feeling 'abnormal' and has negative impacts. Undergoing orthognathic treatment for facial asymmetry was worthwhile. Having the feeling that something is 'wrong' legitimised by clinicians allows patients access to a recognisable treatment narrative (resolution). Orthognathic treatment is also narrated as transformation from 'normal abnormality' to being 'normal'. Nevertheless, challenges associated with treatment can be frustrating, particularly if resolution is hard to envisage. Further psychological input could help to support patients cope with these challenges and the complex process of adapting to facial change.

Keywords

Facial Asymmetry; Narrative; Orthognathic Surgery; Patient Perceptions; Psychosocial.

Introduction

Individuals with facial asymmetry may suffer from psychosocial distress. Orthognathic treatment is the main method of correcting severe facial asymmetry.[1,2] Prior to surgery, orthognathic patients are less satisfied with their dentofacial appearance than controls.[3,4] Patients want improved self-confidence and appearance, including looking more 'normal'.[5,6] Patients are generally satisfied with their orthognathic treatment outcome and body image and self-confidence improves.[7–9] Patients can also experience challenges as part of the treatment pathway.[10–12]

Clinical reviews of the impact and outcome of orthognathic surgery have not historically distinguished between those with and without symmetrical discrepancies.[7,13] One exception analysed the psychological status of patients.[14] Nonetheless, this does not address how asymmetry was coped with by patients. Similarly, qualitative research has not focused on the specific experience of patients with

facial asymmetry.[10,12] However, symmetry influences perceived facial attractiveness, it is important to understand the experience of undergoing corrective surgery for symmetrical discrepancies.[15–17]

This research explored patient experiences of orthognathic treatment for facial asymmetry and adapting to facial change post-surgery. It sought to find out how patients narrated their experiences of asymmetry, orthognathic treatment and their personal adaptation post-surgery.

Method

A socio-narratological approach was adopted to explore patients' accounts.[18] Humans make sense of experiences through narratives, connecting events into recognisable plots. Retrospective accounts are useful for understanding how particular experiences are narrated.

Patients who met the inclusion criteria (Table 1) were identified through reviews of patient databases and clinical case notes, including clinical photographs. Patients were sent an information sheet and invited to interview. Purposive sampling was used to ensure a range of patients in terms of gender, age and time since surgery. No formal sample size calculation was required.[19] Recruitment continued until no new themes emerged.

[Insert Table 1 here]

Recruited patients participated in an in-depth face-to-face qualitative interview including photo elicitation. Interviews were conducted by trained researchers (JEK and LH). Interviews lasted on average 57 minutes. Following a topic guide, interviewers used open questionsto encourage narrative accounts, and probed for further detail Photo elicitation facilitates interviews and enables in-depth understanding of patient experiences.[20] Participants discussed their clinical photographs that demonstrated facial change, and could choose to provide personal photos to reflect their experiences. All interviews were digitally recorded, transcribed verbatim by a transcription company and checked for accuracy. Written, informed consent was obtained.

Data was analysed by JEK using a thematic narrative approach.[21] As with thematic analysis, transcripts were read and re-read for familiarisation.[22] Data was initially coded within transcripts, and narrative elements identified. Provisional themes and narratives were developed. These were compared across the sample and refined. ZM also achieved familiarisation with the data, independently coded 10% of transcripts (n=2) and reviewed the development of themes and narratives. The final themes and narratives were confirmed following discussion with all co-authors.

Ethical approval was obtained from North West – Greater Manchester West Research Ethics Committee (18/NW/0633).

Results

Twenty-five patients who met the inclusion criteria and were due for a review appointment were approached. All started with decompensation and alignment prior to surgery. Ten patients declined to take part and fifteen patients were recruited (Table 2). Reasons for declining to take part were not recorded.

[Insert Table 2 here]

Ten themes were discovered around three stages (Table 3). Prior to treatment, participants became aware of looking visibly different, experienced negative impacts, committed to treatment and

established expectations. During treatment and immediate recovery, participants discussed challenges, coping strategies, access to support and shared experiences. They also reflected on their preparedness. Post-treatment, participants described surgery as being 'worth it', positive impacts of treatment and the process of adapting to facial change.

[Insert Table 3 here]

Three narratives were identified. Treatment could be narrated as a resolution, a transformation and/or as unfinished. The potential narrative 'threat of liminality' was also identified. The following narratives are described with quotations.

Treatment as unfinished

A patient's journey can remain unfinished if they have not achieved an anticipated resolution. It is important to recognise the possibility of this narrative, as patients may consider further treatment to achieve resolution:

> *'My journey isn't actually over until my nose is done.'* (P1)

P1 both expressed the view treatment was 'worth it' and questioned whether she should have had treatment:

> *'It was definitely all worth it.'* (P1)

> *'If you're going to* […] *leave me with a wonky nose; I'd rather have just not done any of it at all.'* (P1)

This ambivalence was reflected in discussions of mood swings and ongoing mental health problems.

Treatment as transformation

Treatment could transform how patients felt about themselves. Participants described a journey from feeling 'abnormal' to feeling 'normal' (in terms of being like other people).

> *'When I was younger you'd have a photo and you think like everyone else looks fine, and you don't.* […] *Now I don't have that, I just look like there's nothing wrong with my face, I just fit in like any other normal person would.'* (P10)

Treatment as resolution

Participants recalled anticipating that the problem identified by clinicians would be fixed through treatment:

> *'It's like a light at the end of the tunnel isn't it? You're waiting for it, you know that it's going to be fixed at some point.'* (P4)

Participants felt that they were moving towards a resolution during the treatment process, both before and after surgery:

> 'Every time I met him [surgeon] *it always felt like I was moving forwards in a sense. He'd* explain where we are at this point, show me more, my x-rays and things like that.' (P15)

Participants that had reached this state of resolution, indicated they had completed their journey:

'*From the start to the finish, all I've wanted is a perfect smile and that's what I'm getting now*.' (P14)

This narrative also involved participants accepting that they had achieved the desired physical result of looking 'normal', through the process of adapting to facial change.

'From the point I woke up, my attitude towards my jaw was different. […] *I'm just more able to just accept it.'* (P13)

Threat of liminality

Aspects of undergoing orthognathic treatment were presented as liminality, being between two established states: the normal abnormality of asymmetry (normal in the sense of being an everyday experience; abnormal in the sense of being unlike other people) and the anticipated normality of facial change. Some participants described feeling like treatment lasts forever:

'*It got to me having my braces on for two years and surgery wasn't, it was l*ike *"oh no, you're* nowhere near*" and at that point you're thinking, "W*hen am I? Is it ever going to end?*"*' (P10)

Recovering post-surgery could also be anxiety-inducing:

'Interviewer: What did it give you anxiety about?

Participant: *Just that you're going to be stuck like that forever.'* (P7)

In an unfinished narrative, patients may still be in this liminal state between 'abnormality' and 'normality':

'I still feel like I'm trapped in this little bubble.' (P1)

Within resolution and transformation narratives, this threat was recalled in hindsight as temporary. However, participants remembered that it did not feel like this at the time, and it could be difficult to imagine achieving a sense of resolution or transformation.

Discussion

Facial asymmetry can be experienced by patients as looking 'wrong' in some way and feeling self-conscious. Participants compared themselves to others, and recalled being conscious they did not look like other people. They felt uncomfortable, for example disliking being photographed. This supports previous research that identified lower self-esteem among orthognathic patients in general.[3]

Participants described treatment as 'worth it'. This aligns with previous research demonstrating high levels of satisfaction.[7–9, 26] Participants were happy about their improved facial appearance and self-confidence, and spoke positively about being photographed, smiling, eating and speaking. Evaluating treatment as 'worthwhile' indicates that the results justify the time and effort involved, and outweigh difficulties experienced.

Adapting to facial change following surgery was a process. Participants initially responded with shock.[10,11] 'Selfies' were used to monitor the process of change, confirming reduced swelling and movement towards resolution. The relationship between appearance and self-concept is complex and changes need to be incorporated into one's self-image.[11] Adjusting to significant facial change can be

experienced positively. However, as this process can be complex and challenging, further psychological input could be beneficial.[11,24]

Patients felt informed by clinicians, and sought additional information, particularly relating to the experiences of former patients. In retrospect some did not feel 'prepared' for how they would feel, physically, mentally and emotionally. Participants valued hearing about patient experiences, which allowed them to frame their recoveries as 'normal'. Previous research has shown that although clinicians are adept at providing factual and scientific information, they may omit details about how patients can best cope physically and mentally with treatment.[25] Patients value reading, watching or hearing the experiences of other patients.[10,26,27] Signposting to available resources could be useful, as well as providing access to the experiences of former patients through dedicated events.

Some participants reported overly positive expectations, particularly around timescale. Participants were frustrated by the lengthy process. Reasons for further orthodontic appointments prior to surgery were not always fully understood. The importance of realistic expectations has been emphasised elsewhere.[28,29] Participants wanted to know they were moving forward towards the goal of surgery and the endpoint of improved facial appearance. Clinicians could more clearly frame orthodontic appointments in terms of progress and help patients to form realistic expectations, for example reiterating that being ready for a joint clinic does not mean being ready for surgery.

Narrating the treatment journey

Individuals who have undergone orthognathic treatment for facial asymmetry produce various narratives. Accounts of engaging with clinicians and undergoing treatment were framed in terms of 'fixing' and 'correcting' recognisable problems. Once participants were made aware they had a clinically-recognised condition that could be treated, this situated their experiences in a biomedical framework, rather than as a purely personal experience of being different.

More widely, people report challenges when they experience medically unexplained symptoms.[30] In this study, participants described being affected by their asymmetry. This included avoiding photos and social occasions, and experiences of bullying, as identified in other research.[11] Participants were sensitive to visual scanning by others, and despite reassurances, felt they did not look 'normal'. Receiving a diagnosis that provides a biomedical explanation can legitimise the experience of feeling that something is 'wrong', both for oneself and significant others.[30] When participants had started treatment, they were able to think 'I'm doing something about this'. This was reported as helping participants to feel better when they received negative comments.

Participants were not simply returning to a state of wellbeing. As asymmetry was often noticed in adolescence, participants were experiencing adulthood without asymmetry for the first time. This involved adapting to a 'new normal', feeling like other people, able to do more things and no longer feeling self-conscious. Thus treatment was also experienced as a transformation. While there were examples of participants undergoing a gradual process of adapting to looking different, facial change was also experienced as facilitating positive lifestyle changes, and 'seizing' of opportunities.

Although participants' overall evaluation was positive, there are acknowledged challenges.[10] The potential for negative narratives emerged when participants described their experiences of liminality between abnormality and normality. Participants felt like orthodontic treatment went on 'forever' and while recovering from surgery, struggled with side effects such as a liquid diet, pain and fatigue. They were reassured when experiences such as low mood or feelings of regret were categorised as a 'normal' part of recovery, whether through a conversation with clinicians or their own online research.

Participants could then position these experiences as part of a resolution narrative. However, if a story is 'unfinished', patients may produce ambivalent accounts. It is important for clinicians to understand what constitutes resolution for each patient, and recognise that this may change following surgery if further issues relating to facial appearance emerge.

As patients try to make sense of their experiences, it is psychologically comforting to interpret treatment experiences in terms of resolution. Thus each clinical encounter ideally takes the patient one step closer to achieving resolution. Participants appreciated receiving information that showed how they were progressing, and what had been achieved since their last appointment. This reduces the risk of appointments being interpreted as repetitive and never-ending.

Limitations

Some participants were remembering experiences from several years prior to interview. In epidemiological research, this can affect reliability. However, from a narrative perspective, the way in which experiences are organised into a coherent plot provides insights into the way people make sense of their lives.[18] This research builds on existing studies by providing an in-depth account of the way in which experiences of asymmetry, orthognathic treatment and adapting to facial change are interpreted.

Although relatively small, the sample size of fifteen was appropriate for qualitative research. Other patients may have had different specific experiences of asymmetry and orthognathic surgery, however, analysis indicates these could have been incorporated into the thematic framework set out in this paper.

Conclusions

Patients experience asymmetry as looking 'wrong', which has a psychosocial impact. Patients report orthognathic surgery is worthwhile to address negative impacts. However, adapting to facial change is a gradual process and can involve initial shock and continued self-consciousness, as well as positive moments. Further psychological input may help patients with this process.

Although patients are informed what to expect prior to surgery, they may feel underprepared in retrospect. Participants wanted to check that their experiences of recovery were 'normal'. Patients may benefit from detailed information about other patients' treatment experiences.

Clinical diagnosis can legitimise feelings that something is 'wrong' and allow patients access to a recognised resolution narrative. Patients also enter a 'new normal' characterised by positive transformation. There is the potential for negative narratives of ongoing frustration.

Conflict of Interests

The authors have no conflicts of interests to declare.

Ethical statement

Ethical approval was obtained from North West – Greater Manchester West Research Ethics Committee (18/NW/0633). All patients have given written informed consent.

Funding

This research was partly funded by the British Association of Oral and Maxillofacial Surgeons.

Acknowledgements

The authors would like to thank Jeremy Collyer and Ken Sneddon for their assistance with recruitment at East Grinstead, and all the patients who gave their time and participated in this project.

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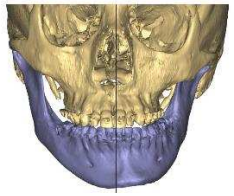
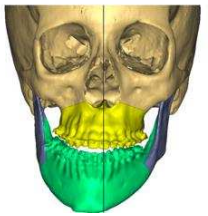
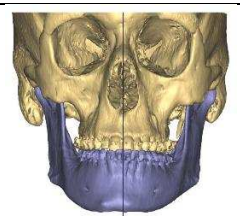
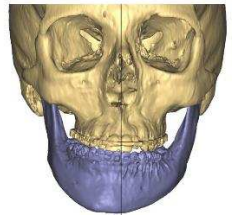
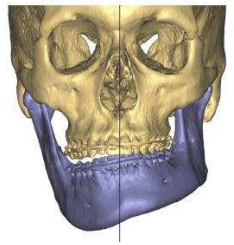
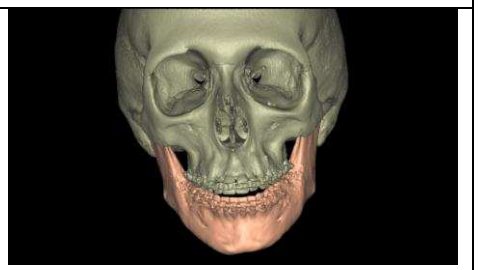
Inclusion Criteria	Exclusion Criteria
• Patients aged 16 and over. • Undergone orthognathic surgery for the correction of jaw asymmetry within the last five years. • Clinically significant asymmetry requiring surgical intervention. Definition of clinically significant asymmetry to be based on clinician judgement and assessment of the face in the vertical and lateral dimension. • Discrepancy not associated with a formal diagnosis of a craniofacial syndrome. • Able to communicate in fluent English. • Able to give informed consent.	• Diagnosed craniofacial syndromes other than hemifacial microsomia. • Not able to communicate fluently in English. • Not able to give informed consent.

Table 1: Inclusion and Exclusion Criteria

Participant	Gender	Age	Ethnicity	Time since surgery	Surgery	Location	Degree of movement	Start position (for VSPs)
P1	F	20	White British	1 year, 2 months	Bimaxillary osteotomy	South Yorkshire	Virtual Surgical Plan (VSP) – Maxilla: 2mm to left, 2° clockwise rotation for cant correction, 4mm advancement, 2mm impaction. Mandible moved according to planned maxilla and to improve asymmetry.	
P2	F	40	White Australian	3 years, 2 months	Bimaxillary osteotomy	South Yorkshire	Surgical Plan (SP) - Maxillary impaction 2.5mm on right with 3mm advancement, midline translation 2.2mm to right. Mandible setback 6.5mm on right, setback 5.5mm on left according to planned maxilla and to improve asymmetry.	

P3	M	27	White British	10 months	Bimaxillary osteotomy	South Yorkshire	Virtual Surgical Plan (VSP) – Maxilla moved 1mm to the left, 3° counter clockwise rotation for cant correction, 6mm advancement, 2mm overall impaction and 4mm additional posterior impaction. Mandible moved according to planned maxilla and to improve asymmetry.	
P4	F	19	White British	8 months	Bimaxillary osteotomy	South Yorkshire	Virtual Surgical Plan (VSP) – Maxillary counter clockwise rotation for cant correction, midline maxillary correction 1mm to left, overall 4mm advancement and 4mm impaction. Mandible moved according to planned maxilla and to improve asymmetry.	
P5	F	23	White British	2 years, 5 months	Bimaxillary osteotomy	East Grinstead	Surgical Plan (SP) – Maxilla: 4mm impaction, 4mm posterior impaction,	

							Mandible to Class I and correct asymmetry.	
P6	M	33	White British	4 months	Bimaxillary osteotomy, bone graft	South Yorkshire	Virtual Surgical Plan (VSP) – Maxilla: clockwise rotation for cant correction (left canine 0.8mm down and right canine 0.0mm impaction), counter clockwise jaw correction. Mandible moved according to planned maxilla and to improve asymmetry.	
P7	F	36	White British	9 months	Bimaxillary osteotomy	East Grinstead	Surgical Plan (SP) – Maxilla: 6mm forwards, 2mm impaction. Mandible to Class I and correct asymmetry.	
P8	M	21	White British	2 years, 8 months	Bimaxillary osteotomy	East Grinstead	Surgical Plan (SP) – Maxilla: level cant in upper on left, centreline 3mm move to right, advance 6mm. Mandible to Class I align lower centreline to upper.	

P9	F	20	Pakistani	1 year, 1 month	Bimaxillary osteotomy	East Grinstead	Surgical Plan (SP) – Maxilla advance 6mm, upper centreline no change. Mandibular set back to Class I, align lower centreline to upper.	
P10	F	22	White British	2 years, 6 months	Bimaxillary osteotomy	East Grinstead	Surgical Plan (SP) – Maxilla forward 4mm, impact on right 2mm. Mandible to Class I and correct asymmetry.	
P11	F	21	White British	3 months	Bimaxillary osteotomy	East Grinstead	Virtual Surgical Plan (SP) – Maxilla: 5mm advance, posterior impaction 5mm right, 3mm left, anterior impaction 2mm, CL 2mm to right. Mandible to Class I.	
P12	F	26	White British	4 months	Bilateral sagittal split osteotomy	South Yorkshire	Virtual Surgical Plan (VSP) – Mandible setback (6.3mm at left canine and 4.2mm at right canine). Mandible incisor midline 0.5mm to right.	
P13	F	30	White British	4 years, 3 months	Bimaxillary osteotomy	South Yorkshire	Surgical Plan (SP) – Maxillary impaction 4mm with 4mm advancement. Mandible forward 3mm	

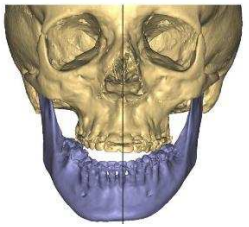
							on left, setback 5mm on right, mandible incisor midline 6mm to right.	
P14	F	21	White British	3 months	Bimaxillary osteotomy	South Yorkshire	Virtual Surgical Plan (VSP) – Maxilla incisor midline 2.2mm to the left, 3° clockwise rotation for cant correction, 4mm advancement, 2mm impaction. Mandible moved according to planned maxilla and to improve asymmetry.	
P15	M	28	White British	5 years	Bimaxillary osteotomy	South Yorkshire	Surgical Plan (SP) – Maxillary cant correction (2mm down on right, 1mm impaction on left) and overall advancement of 8mm. Mandible moved back 5.5mm on right, mandible incisor midline 5.5mm to right according to planned maxilla and to improve asymmetry.	

Table 2: Participants

Stage	Theme	Description	Quotations
Prior to treatment	Becoming aware	Becoming aware of looking visibly different, and of having a clinically significant dentofacial discrepancy. This was often be denied by friends and family.	*'One side of my jaw had carried on growing and the other one hadn't. I was really aware of the* shape of my chin or the shape of my jaw. I hated *that when I smiled, you could see lots of gum.'* (P13) 'When I got referred to the orthodontist to look *at my teeth, that's when they said, you've got all* these problems with your jaw and your face is asymmetric.' (P1) 'They used to tell me that I just looked the same *as everyone else but I didn't.*' (P2)
	Negative impacts of asymmetry	Feeling self conscious, avoiding photos and functional problems were cited as negative impacts of asymmetry. Some participants experienced physical discomfort and mental health problems related to their asymmetry. Feeling physically and psychologically 'abnormal'.	'*I didn't like going out. My friends used to invite* me out and because obviously I felt not as good as they did, so I used to not go.' (P12) *'I could actually show you the whole picture, there's about six of us in this picture here.* They *all look, right nice, so then it's just me that constantly sticks out.'* (P4) *'I couldn't eat very well. Having to eat in front* of people and not do it as good as them, it was *just a lot of teasing, a lot of nastiness.'* (P14) *'It was just very uncomf*ortable. I was getting headaches constantly, aching jaws, and I just *didn't feel right.'* (P7) *'It was just kind of, people are noticing this, and obviously that made me depressed.'* (P6)
	Committing to treatment	Commitment to the treatment pathway. Expressing positive feelings about their decision and memories of looking forward to treatment. Commitment to treatment in spite of disagreement from family and friends.	*'I'd already decided 10*-15 years ago, whatever it involved doing, I want to take it as far as possible and see where we can go with it. Once *everyone said, "Yes, we can do something and this is what we're going to do," then my mind* was never going to falter from whatever it was that I needed to do.' (P6) 'My mum was really concerned, even [though] like I left home 20 years ago she was obviously, *they're all like, "You don't need to get it done*."" (P7)
	Establishing expectations	Establishing expectations of treatment and how they would look and feel following surgery. Based on clear information	'I think everyone was really clear about what was going to happen and how it was going to *progress. They told me from the start, it's going* to be a three year kind of progress.' (P10) 'I was trying to find someone who had recorded it just to see.' (P8)

		from clinicians and own research into the experiences of others.	
Treatment and immediate recovery	Challenges and coping strategies	Challenges of treatment, including annoyances of orthodontics, and physical/emotional difficulties during recovery. Practical strategies outlined for coping with discomfort and functional concerns.	'It was the effort of eating and then I got sick of *soup, like I still can't drink soup because I'm just like I don't want it. We got one of those bottles,* I used to sip it and it was so much effort to have such a small amount of food that I was getting *annoyed with it. I was like, "I don't want to eat."*' (P10)
	Preparedness	Extent to which they felt prepared. Remembered feeling prepared prior to treatment, but in hindsight recognised they were not fully prepared for what to expect. This was related to some overly positive expectations.	*'I don't think I realised how hands*-on that I *needed someone there as well. You think I'll be fine; I'll be able to get up and get my pain* m*edication. I'll be able to go and get a smoothie, but you can't really do anything. You're pretty immobile.'* (P9) *'I was told a timescale but I wasn't told it could* be this long. I was told eighteen months. And then after that there was no kind of guideline after that and I kept coming in kind of getting *more frustrated.'* (P5)
	Support and shared experience	Importance of practical and emotional support from various sources to help them cope with the challenges involved. Access to shared experiences, helped reassure participants their experiences were 'normal'.	'My two best friends, they were literally with me every step of the way. If some days I was *feeling down, they were like right, we'll take you to Starbucks and we'll go and get you a* drink, just to get you out of the house, stop sitting around and moping.' (P1) '*Everyone said there's a point where they wished they'd never done it. I kind of expected I* would think that, and I think that helped.' (P13)
Post-treatment	Surgery as 'worth it'	Idea that surgery was 'worth it', despite difficulties and any on-going side effects.	*'I appreciate the work and it wasn't a quick fix,* it was a long haul. And it was worth it in the *end.'* (P5)
	Positive impact of treatment	Impacted positively by treatment, including improved appearance, self-esteem and confidence, and some functional improvement. Side-effects having limited negative impact.	'*Yeah, saw the results and I'm really happy with how it was. […] It was more how I looked than* the problem [e.g. his bite].' (P8) *'*[Comparing two photos] It just looks awkward, *but now it's natural. That looks like an awkward smile; that looks like I'm getting, I'm happy, I'm getting my picture taken smile.'* (P4)

	Process of adapting to facial change	Adapting to facial change as a process, reflecting faces changing over time and having to 'get used' to these changes and accept different facial features.	*'At first I thought, "It looks a bit like he's done it too much,"* […] It was quite far in, but, as soon as the swelling goes, it just seems to be a lot *better. It looks a lot better.'* (P3) 'I think after the braces came off, I was like, okay, this is your final face, the swelling might go down a little bit more but this is your final face that you have to work with now.' (P10)

Table 3: Themes