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## **#JawSurgery: Analysis of Social Media Use in Orthognathic Surgery Patients**

### Conflict of Interest

No Author Declares a Conflict of Interest

**Abstract:**

The use of social media has risen at a rapid rate in the last 10 years and thus it is unsurprising that many patients are using social media in order to gather information about medical treatment.

The use of social media is particularly high amongst teenagers and young adults, who make up the majority age group undergoing orthognathic surgery, and as such the authors wanted to investigate how orthognathic patients were using social media.

Over a 3-month period, 51 consecutive patients seen at Bristol Dental Hospital, on an orthognathic treatment pathway, were given a structured 15 item questionnaire to investigate both their general use of social media to gather general health related information and in relation to their orthognathic treatment.

A total of 47 valid responses were collected. With regards their orthognathic treatment, 25 (53%) sought advice on social media. 89 percent of patients trusted information from medical professionals on social media. The vast majority of those who responded found that using social media made them less anxious about their orthognathic treatment.

The results show that the majority of patients undergoing orthognathic treatment are increasingly looking to social media to gather information on their treatment. They are using this alongside traditional sources of information and extensive discussion with medical professionals but seemingly gain some level of reassurance online.

**Key Words** – infodemiology, online, orthodontics, orthognathic surgery, social media.

## **Introduction**

The use of social media, websites specifically formulated to allow participants to create content, has risen at a rapid rate in the last 10 years and thus it is unsurprising that many patients are using social media in order to gather information about medical treatment. Globally, 5% of all Google searches were health related<sup>1</sup> and Social Network Sites (SNS) have started to revolutionise the way patients interact with clinicians and other patients<sup>2</sup>.

A variety of purely health based SNS have started to appear, sites such as PatientsLikeMe<sup>®</sup>, dedicated to patient led discussion of treatments, symptoms and experiences<sup>3</sup>.

General Medical Council advice highlights issues with privacy, boundaries, confidentiality, respect for colleagues and anonymity. It also underlines the positive aspects; engaging the general public, establishing national and international networks and facilitating patients access to information about health and services<sup>4,5</sup>

The use of SNS is particularly high amongst teenagers and young adults, who make up the majority age group undergoing orthognathic treatment, and as such the authors wanted to investigate how orthognathic patients were using social media with the primary aim of evaluating whether more should be invested in the use of social media to support this patient group.

## **Methods and Materials**

This pilot study was carried out over a 3-month period where fifty-one consecutive patients seen at Bristol Dental Hospital, on a treatment pathway, were given a

structured 15 item questionnaire (Appendix A) to investigate both their general use of social media to gather *general health related information* and in relation to their *orthognathic treatment*.

### ***Ethical Approval***

An application for full ethical approval was submitted to NHS Research Ethics Committee and Research and Development departments after sponsorship by University of Bristol was received. Full approval was granted on 11<sup>th</sup> May 2015.

### ***Data Analysis***

Four questionnaires were deemed invalid due to incompleteness. Simple descriptive statistics were used to analyse the results. Where questions required free text, the responses were categorised allowing common themes to be highlighted (Search Term, Post, Post type).

### **Results**

A total of 47 valid responses were collected. The mean age of respondents was 23.7 (range 12-48), and the male to female ratio was 1:1.6.

Patients were asked to report their likelihood of using various sources to access general (not orthognathic specific) health related information. Forty-four (94%) of patients *always* or were *very likely* to use the Internet when accessing health

information. This was 35(74%) for family/friend, 33(70%) for visit doctor and 23(49%) for social media and 7 (15%) for leaflets (Figure 1).

Patients were asked to identify the main categories that were searched for when seeking general health related information (Figure 2)

Patients were asked to identify interactions on social media with known medical professionals and other members of the public. Eighty-nine percent (8 of 9) of patients trusted information from medical professionals on social media where as only 56% (18 of 32) trusted information from other general users. Seventy-seven percent found online information easy to understand and 63% were comfortable discussing medical information online.

Patients were asked to identify which social media sites they used and with what frequency.

Thirty-four (72%) of patients reported using regulated (peer reviewed) health related online information. With regards their *orthognathic treatment*, 53% sought advice on social media and 36% posted on these sites (Figure 3)

The search terms used by patients and the frequency they were searched, relating to their *orthognathic treatment* are seen in Table 1. Also in this table are the categories of post made by patients as well as the format (photo, x-ray or text).

Twenty-seven (87%) of 31 who responded found that using social media made them less anxious about their *orthognathic treatment*.

## **Discussion**

The results show that this age group of patients, having functional and aesthetic surgery in their early twenties, are searching social media (to obtain previous non-institutional specific patient stories) as well as traditional websites. Indeed, over 50% are using social media to search for orthognathic surgery related health information. This provides an opportunity for health professionals to act in order to regulate the information via static or real time information such as an institution or condition specific social media page. Previous research has shown that the majority of patients feel well informed prior to consenting to the lengthy and invasive treatment plan however many stated that the post operative symptoms and recovery time were much worse than they had expected<sup>6</sup>.

Multiple studies have shown that support groups reduce anxiety<sup>7,8,9</sup>. As this cohort is searching social media we suspect they are trying to identify real time synchronous information for the same reasons in order to relieve anxiety regarding treatment. Indeed, we found that 87% were less anxious with regards their orthognathic treatment after searching on social media networking sites. The discovery of other patients experiencing the same surgical journey, thoughts, feelings and willingness to interact, in real time is clearly incredibly useful for this patient group – but never reported previously. The usage of social media has been investigated in a group of parents of children with clefts – the results showing 92% of their cohort having used social media to find information on their child’s condition<sup>10</sup>.

Knowledge of the search terms (hashtags) most frequently used by patients allows professionals to appropriately tag (key words) posts in order for patients to search and identify them. It is also interesting to note that patients are more likely to post a photograph of themselves and to update those who find that post on their treatment progress. Only two patients reported the use of a hashtag reflecting the name of our institution. This may be different in a non-social health care setting such as North America or within private practice.

Patients maintain a healthy level of scepticism with regards non-professional websites or social media postings, and advice from lay people online. This highlights the biggest danger of online information, it is largely unverified and may be misleading. They seem enthusiastic and trusting of information reportedly from medical professionals (89%) – it may be that professionals need to become less resistant to and embrace social media, as it seems that this generation of patients are happy to engage online with doctors and dentists for health information. Indeed, a number of online general practice advice websites already exist.

Studies have also been undertaken involving patients suffering from chronic conditions such as type I diabetes mellitus<sup>11,12</sup>, breast cancer and chronic kidney disease<sup>13,14</sup> to investigate the benefits of partaking in online support groups. The results appear to be inconclusive but with an agreement that no harm comes from participating in the groups<sup>15</sup>. Interactions with ‘online health contacts’ may affect a patients’ attitude towards each appointment as they discuss what to expect with people online.



Ultimately the use of social media allows patients to observe and understand the self reported and patient centric outcomes relating to orthognathic surgery from others undergoing this treatment journey.

In general, the quality of information available online for patients undergoing orthognathic surgery or suffering from maxillofacial trauma is poor<sup>16</sup>. Indeed, Bhamrah et al<sup>17</sup> examined online discussion groups and identified that patients used these sites to seek additional information, support, and reassurance from peers undergoing similar treatment.

Gilhooley et al<sup>18</sup> also reiterated warnings about harm that could be caused by incorrect and biased information. It has been illustrated that the risk, in extreme form, in relation to suicide, where unregulated sites can often encourage people and also demonstrate to the user the act of committing suicide. A less extreme example of this is that internet based post operative pain related information is poorly worded, too complex, unreliable and of medium quality<sup>19</sup>. Walker et al. demonstrated a cohort of patients that showed no effort to report their outcomes via telemedicine<sup>20</sup>, this was however in the context of minor trauma. In contrast, orthognathic patients are keen to report their own outcomes and are actively searching for synchronous non-static advice with regards to their procedure. The British Orthodontic Society has published a Your Jaw Surgery guide on its website. This amazing resource provides patients with patient stories and clinical advice. This static service does not provide the interactivity that our results suggest patients currently seek and we would suggest that an associated BOS “your jaw surgery” administrated facebook, instagram and twitter account are set up.

Orthognathic patients are also happy to be involved in social media based research with regards their indications and surgical outcomes<sup>21</sup>.

It should be noted that our group of patients differ in characteristics to those that normally seek health related information as this is a cohort that is younger and medically fit. They are seeking health information, rather than for example, ill-health or disease information. However, this group of patients do reflect those undergoing orthognathic surgery and as such is relevant when looking at how this patient group uses social media to gather information regarding their treatment from an orthognathic stand point. This group of patients have also grown up in the era of social media – and may take this level and type of access with them throughout their lives.

The use of blogs was not explored in this study and this is an area that would benefit from further investigation owing to its increasing popularity. Furthermore, we did not seek to examine the quality of online social media postings – again an area that requires focus in any further work.

This is a group of patients who will grow older and the trend seen in this study may continue. Patients may move away from leaflets, and turn towards social media for health information. Through the use of hashtags as a way of marking social media posts, surgeon level and institutional level data will be available to the public. It is therefore important that our practice reflects this shift in patient attitude and as such changes are made accordingly so that patients continue to have easy access to relevant, well-written and accurate information – in a format that suits them.

## Conclusions

This study has gone some way to show that the way patients gather information prior to surgery is changing and becoming more diverse. Face to face interactions with medical professionals and leaflets are by no means obsolete however a shift is being seen towards the use of online resources.

We should encourage patients to engage with other patients and in order to do so safely; professionals should signpost patients to the relevant social media sites and health forums.

It is clear that patients are looking for self reported patient outcome measures via social media. It would be interesting to know which patient reported outcome measures these patients were looking for on social media e.g. pain following surgery, post-operative paraesthesia, facial deformity, requirement for second surgical procedure, facial swelling, length of post-surgical orthodontics. This will be the focus of future work.

Further insightful information may also be gained from patient discussion groups or the distribution of a more extensive questionnaire. Following patients at different points in their treatment may also underline some interesting differences and allow for a much more significant set of data to be collected. This pilot study has, however, highlighted the need for further research in to this expanding area.

Word Count - 2544

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**Appendices**

**Appendix A – Questionnaire distributed for the study.**

Patient Use of Social Media at Bristol Dental Hospital

A study is being conducted into how patients attending the dental hospital for treatment are accessing information about their treatment.

(1) How likely are you to use the following sources to gather health related information?

	Always	Very Likely	Sometimes	Never
Visiting a doctor or dentist				
Asking a friend or family member				
Information leaflets				
Internet				
Social Networking sites online				

(2) What information do you mainly look for?

- a. Symptoms
- b. Treatment options
- c. Complimentary Therapy /Homeopathy
- d. Medications
- e. Support groups
- f. Patient experiences
- g. Location of Experts
- h. Other \_\_\_\_\_

(3) Do you use any of the following social media sites and with what frequency?

	More than 3 times a day	Daily	Once a week	Never
Twitter®				
Instagram®				
Facebook®				
Other				

(4) Have you ever used online health related support pages or groups (eg patient.co.uk or nhschoices.co.uk)

YES NO

(5) Did you *search* online social media for information about today's appointment?

YES NO

a. If yes, which site did you use? \_\_\_\_\_

b. If yes, what specific term(s) did you search (eg. Wisdom tooth, cleft palate)? \_\_\_\_\_

(6) Did you post any information related to today's appointment? YES

NO

a. If yes, what did you post about? \_\_\_\_\_

b. What type of post did you make (eg plain text, photo, Xray)

\_\_\_\_\_

(7) Have you interacted with any medical professionals on online social media regarding your health?

YES NO

(8) How trustworthy did you find this information?

Trustworthy	
Unsure	
Didn't trust the information at all	

(9) Have you interacted with any strangers on online social media regarding your health?

YES NO

(10) How trustworthy did you find this information?

Trustworthy	
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Unsure	
Didn't trust the information at all	

(11) Did you find the information you found easy to understand? YES  
NO

(12) Did you feel comfortable discussing medical information online? YES  
NO

(13) Did using online social media make you feel more or less anxious about the treatment today?  
\_\_\_\_\_

(14) How old are you? \_\_\_\_\_

(15) Gender? Male Female

Thank you for your participation. Please deposit this questionnaire in the designated box. If these questions have raised any concerns please refer to the participant information sheet attached for advice.

## Figures & Tables

Figure 1: Frequency of use of current sources of information

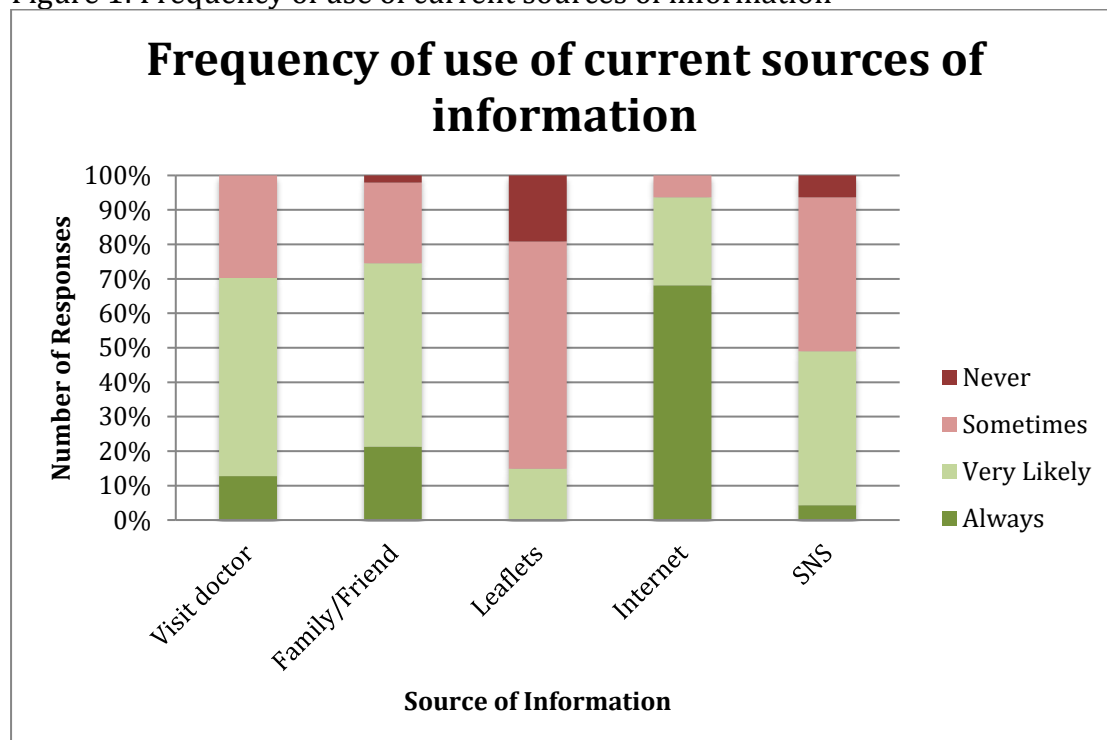


Figure 2: Type of Information Commonly Searched For By Patients Relating to General Health Related Information.

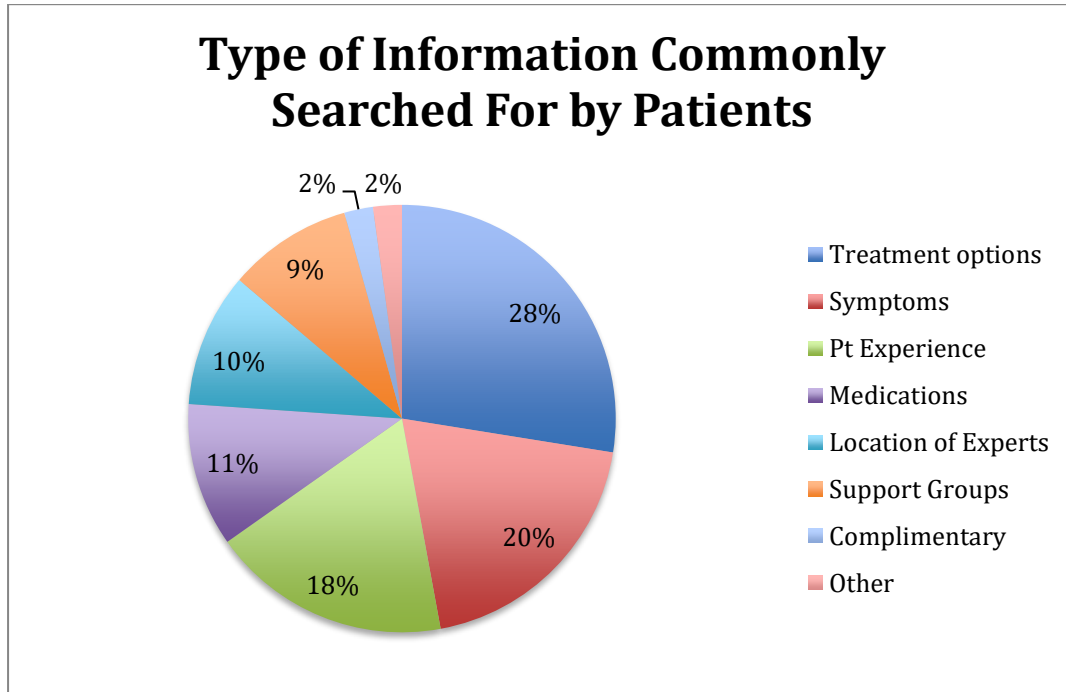


Figure 3.

Percentage of Patients who Searched Social Media Sites Relating to their Orthognathic Treatment with reference to todays appointment.

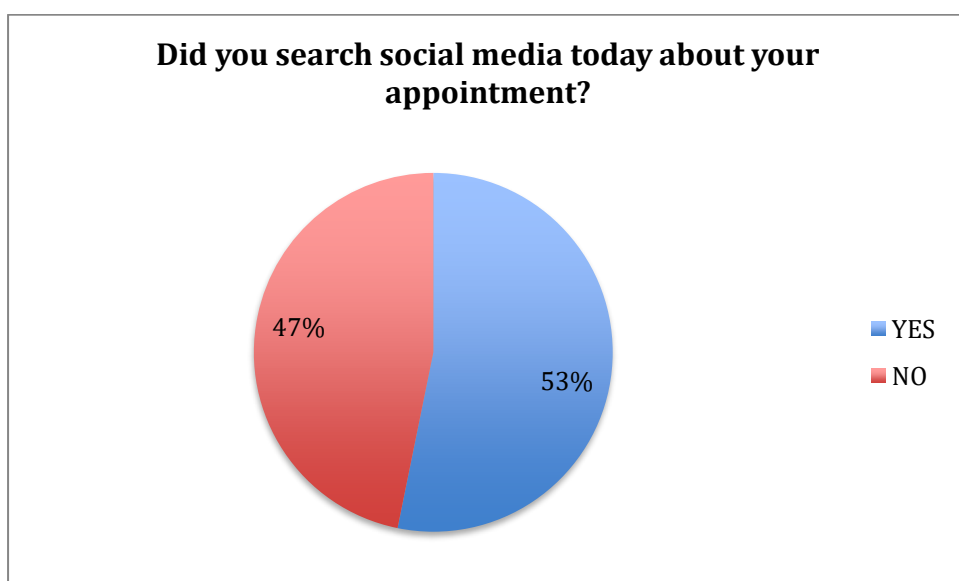


Table 1: Analysis of Social Media Search Terms by Orthognathic Patients

Terms Searched	Frequency
Jaw Surgery	18
Orthognathic	9
Braces	7
Orthodontic	3
Recovery	2
Post Op	2
Malocclusion	2
Maxillofacial	2
Open Bite	1
Jaw Journey	1
Post	Frequency
Progress Up date	13
Radiograph	2
Post Op Photo	2
Query	1
Type of Post	Frequency
Photo	8
Xray	3
Text	7