

INTRODUCTION

Scuba divers should ensure a high standard of dental health and receive regular dental checks. Studies have discussed the barodontalgia and orofacial barotraumas of scuba divers but few have attempted to observe the broad state of dental health in recreational divers.

Odontophobia affects between 5% to 20% of adults in the industrialised countries.

In the UK dental health checks and treatment carried out under the National Health Service (NHS) incur a subsidised charge. In recent years this facility has become more limited in availability resulting in the majority of dental practices treating privately at full cost to the patient.

As part of an ongoing study of the health of divers we attempted to gain an insight into the dental health of divers and related issues.

METHODS

- The project was a questionnaire-based online survey
- Publicity was through diving exhibitions, social media and the DDRC Healthcare website
- Data were submitted anonymously between April and November 2014

Measures included:

- Diver and diving demographics
 - Gender; age; training affiliation
 - Years diving; dives in the last 12 months
 - Dives since learning to dive; maximum depth dived
 - Self diagnosed DCI; treated DCI
- Dental involvement
 - Dental checks
 - Divers dentist understanding of scuba
 - Dental work – fillings, crowns, veneers, bridgework, root canal, implants
 - Full or partial dentures, tooth extractions
 - Bleeding gums
- Problems whilst diving
 - Maxillofacial pain – ascent, descent, and water temperature
 - Shattered fillings and related problems
 - Sinus barotrauma
 - Modified regulator mouthpiece
 - Aborted dives due to maxillofacial pain or discomfort

“I had several teeth crack and asked the dentist if it could be anything to do with the pressures of diving. I was assured that this was not the case and air pockets under fillings did not exist.”

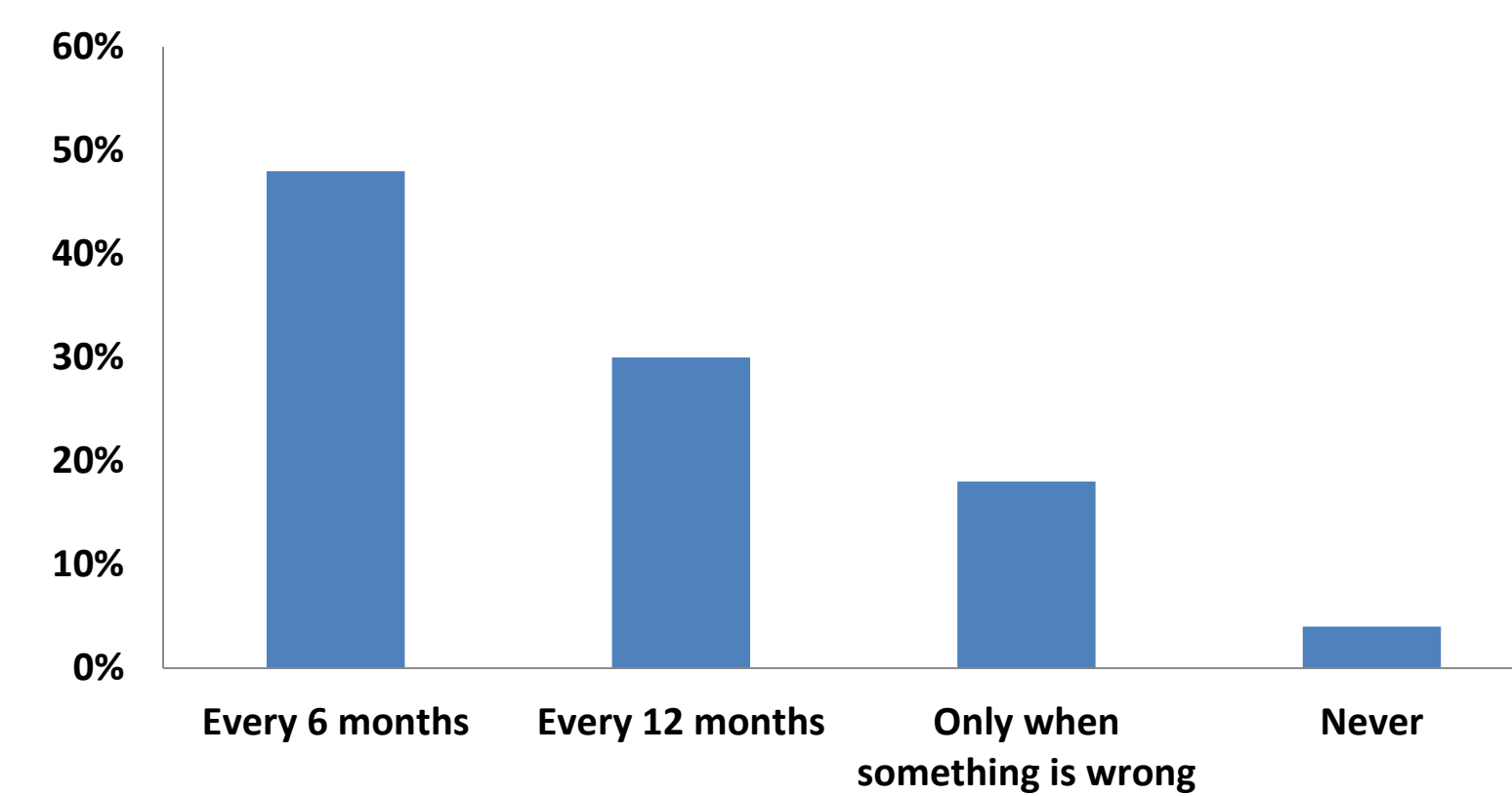
“Dentist claimed it wasn't possible to get trapped air in the fillings....”

RESULTS

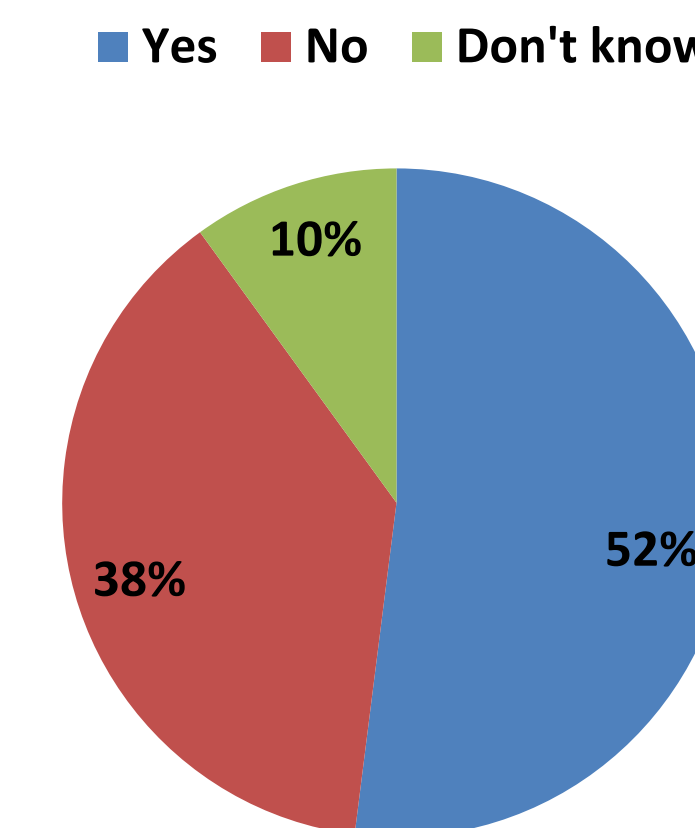
- 416 records (67% male, 33% female), age range 16 to 70 (median 44)
- Diving experience
 - Years diving 0-49 (median 11)
 - Dives in last 12 months 0-500 (median 40)
 - Dives since learning 6-10,000 (median 350)
 - Maximum depth dived 3-190 meters (median 45)



Frequency of visits to the dentist?



Does your dentist know you are a diver?



Maxillofacial pain when diving

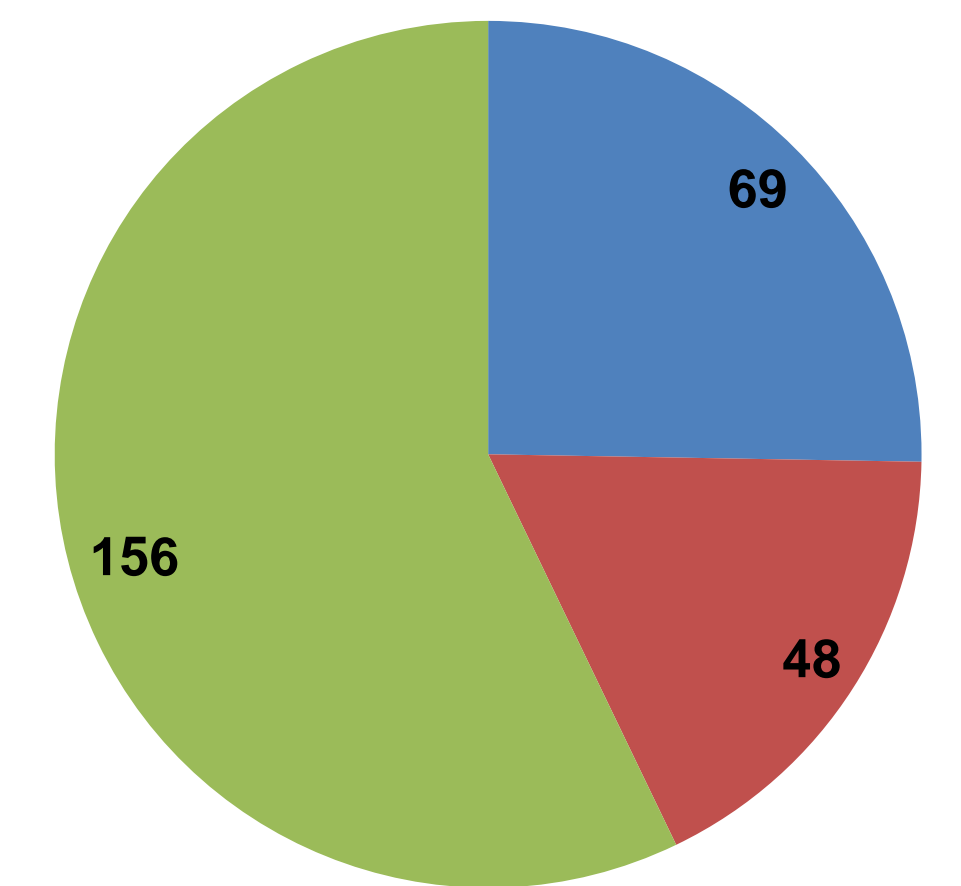
- 57% (240/416) reported pain caused by one or more of the following:
 - Water temperature
 - Ascent
 - Descent

Pain – ascent and descent

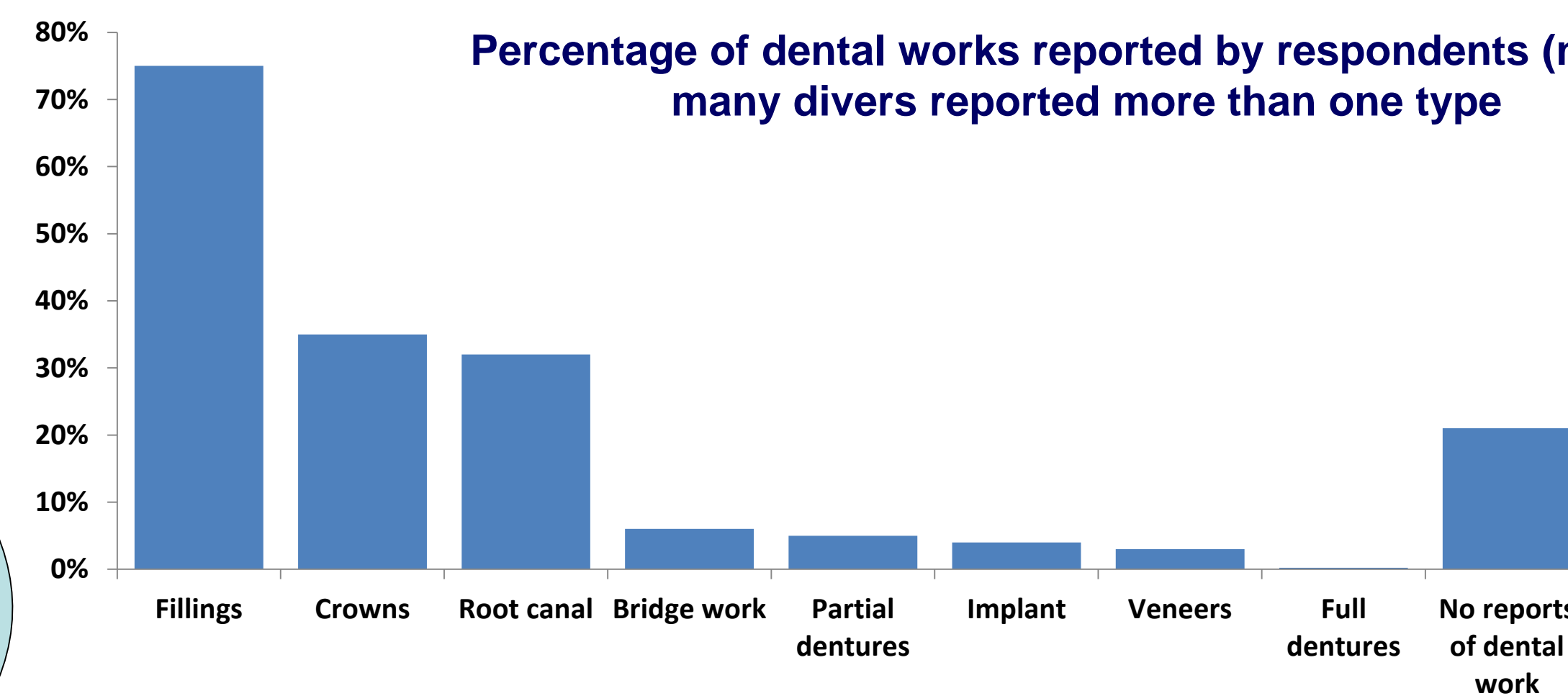
- 56% (231/416) of divers reported pain on ascent, descent or both
- 45% (187/416) complained of sinus pain, the majority (153/187) being on descent

Reports of pain in cold water

Facial/jaw pain Tooth pain Sinus pain



Percentage of dental works reported by respondents (n=416), many divers reported more than one type



“Severe pain in cold water in side of head like eating ice cream too fast with bleeding/ taste of blood in mouth..”

- 31% (27/86) of the group who did not report any dental work either never attended a dentist or only attended when there was a problem

Bleeding Gums

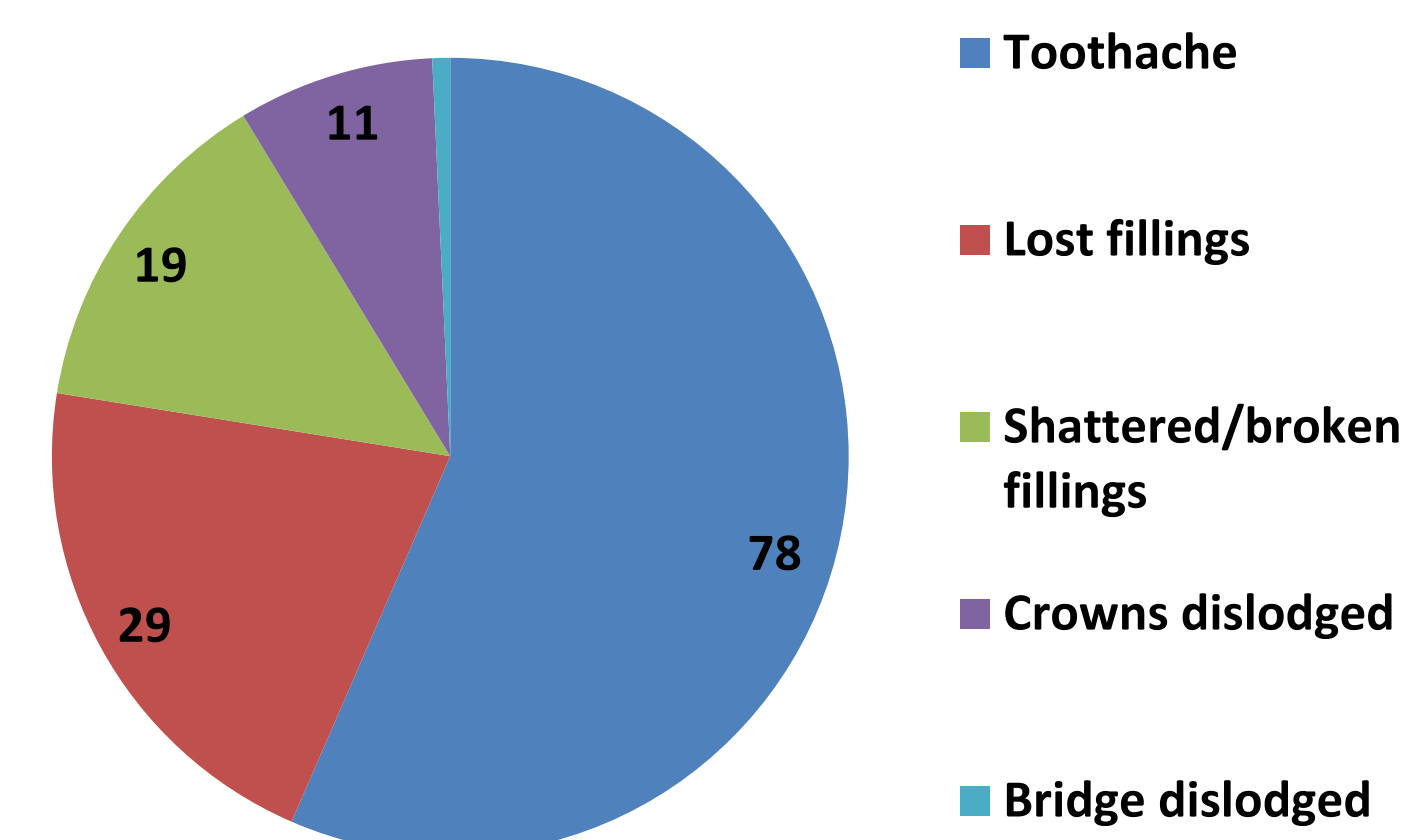
- 93% (387/416) answered this question
 - 42% (161/387) experienced bleeding gums when cleaning their teeth
 - 24% (39/161) never had dental checks, or only attended a dentist when something was wrong

Regulator mouthpieces

- 10% (42/416) reported trouble holding a regulator comfortably in their mouth due to dental problems
- 8% (32/416) had a specially moulded mouthpiece
- 19% (78/416) commented regarding the design and/or comfort of regulator mouthpieces

“I am a dentist with a keen interest. I feel that regulator mouthpieces are very poor causing protrusion of the mandible increasing the stresses involved. Have seen a couple of cases where diving has made dental problems worse...”

Events whilst diving



Tooth extractions

- 35% reported tooth/teeth extractions since learning to dive
- Post tooth extraction, 5 respondents suffered pain or discomfort when diving. All resumed diving between 2 weeks and “a few weeks” after tooth extraction



CONCLUSION

The data in this study group raised specific issues:

- Not all respondents in this study maintained a high standard of dental health
- There were a number of divers in this study who only went to the dentist when something was wrong, or did not attend at all
- The cost of dental treatment in UK may be an issue regarding dental attendance
- Not all respondents had informed their dentist they were scuba divers
- Some respondents reported their dentists did not understand the implications of scuba on dental health
- Maxillofacial pain whilst diving had been experienced by the majority of respondents
- Sinus barotrauma was commonly reported by divers in this study group
- Some emphasis should be placed on dental education by dive training bodies
- Divers should be encouraged to pay more attention to their dental health and inform their dentist of their diving activities

The authors accept possible bias may be associated with an anonymous survey due to the inability to follow up. However, anonymous methodology has two benefits. It enables the respondent to participate in the study, clear in the knowledge that they will not be challenged in any way should they have something to hide; and at the same time it also enables the researcher to gather data that would normally remain unreported.

Acknowledgement: The authors would like to extend their thanks to Kathryn Slater for her help in this project