

Oral health status of athletes with an intellectual disability competing in the Special Olympics GB National Games 2017

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Key points

Provides a description of the oral health status of athletes with intellectual disabilities competing in the Special Olympics.

Highlights that data on the oral health of those with intellectual disabilities within the UK is scarce and this is the first report of its kind in ten years

Acts as a useful baseline to monitor and observe the oral health of individuals with intellectual disabilities within the UK and in comparison to other countries.

Abstract

Background The aim of this paper is to describe the oral health status of athletes with intellectual disabilities competing in the Special Olympics, GB National Games, held in Sheffield in August 2017.

Methods and materials A convenience sample of athletes who participated in the Special Olympics Special Smiles screening programme was used. All data was recorded on validated Healthy Athletes screening forms.

Results Of the 692 athletes that participated, 14% had untreated decay, 51.9% had at least one filling and 28.6% had signs of gingivitis. Furthermore, 6.2% reported pain from their mouth and 2.7% were found to require urgent treatment. Overall, 90.3% reported to clean their mouths at least once per day and 0.7% were found to be edentulous.

Discussion The findings from this screening highlighted lower rates of decay, pain and urgent treatment need in comparison to Special Olympic screenings worldwide.

Conclusion The oral health of athletes competing in the GB National Games 2017 was better than noted at most Special Olympic events throughout the world. There is little data published on the oral health of individuals with learning disabilities in the UK. These results provide valuable baseline data to monitor and review the oral health of Special Olympic athletes within Great Britain.

Introduction

Approximately 15% of the world's population live with a disability, and within the United Kingdom (UK) 1.5 million people have an intellectual disability.^{1,2} The World Health Organization defines an intellectual disability as 'a significantly reduced ability to understand new or complex information and to learn and apply new skills.'³

Background

People with learning disabilities experience more health inequalities than the rest of the

population.⁴ These inequalities encompass dental health, with poor oral health significantly affecting the ability to eat, speak, and socialise. Poor oral health may cause pain and thus negatively impact on quality of life.⁵ A systematic review highlighted that individuals with learning disabilities have poorer oral hygiene and increased prevalence and severity of periodontal disease than the general population.⁶ The study found no difference in the rates of dental caries, however, it did note that untreated decay rates were much higher in those with intellectual disabilities. The reasons for this are likely to be multifactorial. Firstly, intellectual, motor and sensory impairments can all affect the ability to perform effective oral hygiene. Many living with a disability require support in performing daily oral hygiene and care staff may not be providing this necessary care.⁷ Some individuals with intellectual disabilities may require sugar-based, liquid medications or high calorie supplement drinks.⁸ Certain prescribed medications can decrease saliva production,

resulting in the loss of its cariogenic protective effects.⁹ Additionally, incomplete lip closure is common in those with Down's syndrome, cerebral palsy and certain other conditions. This may result in a tendency to mouth breathe which can dry the oral tissues and result in gingival inflammation.¹⁰

Access and acceptance of dental care may be more challenging in this patient group. This can be attributed to a lack of specialised services as well as poor knowledge or negative attitudes towards those with disabilities.^{11,12} In the UK, the National Health Service (NHS) provides affordable dental treatment which is available to all. Additionally, the Community Dental Services provide access to care and specialised treatment where required for those with disabilities. The development of special care dentistry (SCD) as a recognised UK dental speciality is helping to reduce these barriers to care and increase awareness and knowledge of providing dental care for those with disabilities; however, they still represent a patient group with high dental treatment needs.⁶

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Special Olympics is an international organisation that promotes inclusion and aims to alter the perception of those with disabilities. It provides opportunities for people with learning disabilities to train and compete in sporting events worldwide. Participation in sport promotes the development of new skills and confidence and helps to increase the profile of intellectual disability while reducing misconceptions associated with learning disabilities.¹³ Since its foundation in 1968, the organisation has grown and now supports 4.9 million athletes across 172 different countries.¹⁴ In 1995, the Special Olympics 'Healthy Athletes' (HA) initiative was introduced and by 1997 this programme, which included a 'Special Smiles' team, was officially launched.¹⁵ The HA initiative provides athletes with education, health screenings, signposting and referral to health services where necessary. It also assists in educating health care professionals on how to appropriately treat people with learning disabilities. Additionally, this initiative collects health data on competing athletes and currently holds the world's largest database on the health of those with intellectual disabilities.¹⁶ The Special Olympics Special Smiles (SOSS) team aims to collect data from dental screenings, provide oral health promotion and increase awareness of the importance of good dental health to athletes, coaches and family members.

The SOSS programme provides a unique opportunity to collect standardised data on this patient group and, to date, most research published on the oral health status of those with learning disabilities has been collected at Special Olympics events. Despite this, there are very few studies describing the oral health of those with intellectual disabilities within the UK. The aim of this paper is to describe the oral health status of athletes with intellectual disabilities competing in the Special Olympics GB National Games held in Sheffield in August 2017.

Methodology

Design

This is a retrospective, descriptive study of athletes participating in the Special Olympics GB National Games in Sheffield, 2017.

Population

A sample of convenience was utilised for this study. All competing athletes were sent consent forms for participating in the games and the HA programme. These forms explained that data collected as part of the HA programme may be published or used for further research.

Consent forms had to be signed and returned before the event. Athletes were then invited to have their mouth examined at screening bays within the HA area. At this point, consent was reconfirmed verbally with the athlete. Special Olympics hold ethical approval for all Healthy Athlete event data collection. As this data is secondary, anonymised data there was no requirement for further ethical approval to be sought before the writing of this article.

Volunteers

Forty-two volunteers participated in the SOSS team. These volunteers included dentists, hygiene therapists, dental nurses, dental students and members of the oral health promotion team. All volunteers received training and standardisation following the strict SOSS screening protocol developed by the Centre for Disease Control and Prevention (CDC) and a pictorial calibration exam was completed before the event.¹⁷ Dental screening was performed by qualified dentists or supervised senior dental students, with the remaining volunteers recording data on the HA screening forms or providing oral health promotion.

Screening

Screening was conducted from the 6th – 10th August 2017. The SOSS screening area was set up in the hall of a local primary school, located a five-minute walk from the athletes' village. Patient demographics including name, date of birth or age, sex, region and sporting event were recorded. Each athlete was asked how often they cleaned their mouth and if they were experiencing any pain from their mouth. The examination was then carried out. If the athlete refused at this point, the screening was discontinued and their refusal recorded on the screening form. The examination was carried out using a head torch and a dental mirror, in accordance with Special Olympic screening protocol. Screeners were provided with head torches, gloves, alcohol hand gel, dental mirrors and clinical waste bags. One volunteer would conduct the screening while another acted as the recorder and noted the findings on the screening form. If the patient was found to be edentulous the screening process was discontinued. If the patient was dentate the teeth were examined for:

1. Untreated decay, defined as at least one area of cavitation that would accommodate a 0.5 mm ball burnisher in the primary and permanent dentition
2. Filled primary and permanent teeth, excluding crowned anterior teeth

3. Missing permanent teeth, excluding premolars and third molars. Unerupted teeth were not counted as missing, in accordance with eruption dates
4. Sealants in the permanent dentition
5. Injury to the permanent maxillary and mandibular incisors only (injury classed as fractured teeth or fillings and discoloured incisors with/without a filling in place)
6. Fluorosis with homologous presentation (assessed on the maxillary buccal surfaces of premolar to premolar)
7. Gingival signs defined as free or attached gingival margins or papillae which have moderate erythema or show significant deviations from normal contour or texture (assessed on the buccal surfaces of mandibular canine to canine).

Partially erupted teeth and wisdom teeth were not included in the screening process.

Following the screening, each patient was assigned a treatment urgency category. Athletes were scored as maintenance if there was no decay, no untreated injuries and no gingival signs. A score of non-urgent was given where decay not involving the pulp, broken fillings without decay, and gingival signs without the presence of an abscess were noted. Urgent scores were given if there was caries with possible pulpal involvement, there was a broken filling with decay or if a periodontal abscess was noted. Each athlete was then given a form explaining any dental problems identified, what category they had been assigned to and advice on when to see a dentist. Athletes were then directed to the oral health promotion area where oral hygiene instruction was given using mouth models, posters, sand-timers and puppets.

Data collection

All data was recorded on the Special Smiles Healthy Athletes standardised forms at the time of screening.¹⁸ This data was then entered into the Special Olympics statistical software for analysis. No further breakdown of data is currently available in relation to age/gender/region/sporting activity.

Results

Over the five-day event, 692 out of the 2,008 participating athletes were screened (34.5%). Gender distribution demonstrates that 61.6% of participants were male and 38.4% were female. Athletes ranged between nine and 76 years of age, with the majority of athletes being over 16 years of age (93%) (Table 1).

Table 1 Special Smiles demographic data (GB games 2017) and feedback from the questions asked (percentages)

Age range	9–76 years
Mean age	30.1
Gender	
Male	61.6
Female	38.4
Frequency of mouth cleaning	
At least once per day	90.3
2–6 times per week	5.5
Once per week	1.3
Less than once per week	0.9
Not sure	1.9
No response	0.1
Pain inside mouth	
Yes	6.2
Teeth	4.2
Other	1.6
No	93.2
No response	0.6

Table 2 Special Smiles screening data (GB games 2017), intra oral screening results (percentages)

Screening	
Edentulous	0.7
Untreated decay	
Anterior(s)	4.2
Premolar(s)	2.5
Molar(s)	10.5
Filled teeth	51.9
Missing teeth	
Anterior(s)	12.9
Molar(s)	25.9
Sealant(s)	16.9
Injury	9.7
Fluorosis	2.7
Gingival signs	28.6
Treatment urgency	
Maintenance	61.7
Non-urgent	29
Urgent	2.7
Refused screening	5.2
Not recorded	1.4

Mouth cleaning was reported at least once per day in 90.3% of participants and only 0.7% were found to be edentulous. Of the athletes screened, 14% had untreated decay and 28.6% had signs of gingival inflammation. Pain from the mouth was recorded in 6.2% of participants with 4.2% experiencing pain specifically from their teeth. Fillings were recorded in 51.9% of the athletes and 16.9% had fissure sealants present. Missing teeth were noted in 30.2% and signs of an untreated traumatic injury to the anterior teeth were found in 9.7%. Fluorosis was noted in 2.7% of athletes. From the athletes screened, only 2.7% required urgent dental treatment, 29% were recorded as requiring non-urgent care and 61.7% were deemed to need maintenance only (Table 2).

Discussion

This is the largest sample in the UK of this kind and the first report on oral health of Special Olympic athletes in the UK since 2008. The SOSS screening carried out at the Special Olympics GB National Games followed the strict standardised protocol which applies to all SOSS screenings. This allows for direct comparisons to be made with other screenings carried out throughout the world. Comparing our results to other SOSS screenings over the last ten years,¹⁹ demonstrates that the proportion of athletes with fillings was slightly lower than the findings from other developed countries but still higher than in developing countries. This may be due to the shift towards providing preventative dentistry within the UK in recent years.⁵ The proportion of athletes with signs of gingival inflammation was slightly lower than previous Special Olympic screenings have found. Research has shown that gingivitis can affect between 28% and 75% of the general population and so this is at the lower end of what would be expected.^{20,21} The GB screening also noted less athletes with untreated decay than other SOSS screening programmes to date. The number of participants experiencing dental pain and requiring urgent dental care was also significantly lower than the majority of other Special Olympics screening programmes.

There is little published data on the oral health of those with intellectual disabilities in the UK and there is no data from the last decade. Data from the 2005 Special Olympics in Glasgow reported a low prevalence of untreated decay but as these results were split into age groups and regions, it is not possible to draw comparisons.²²

Healthcare systems vary greatly across the world and in many countries dental care is

provided under private contract. The NHS and Community Dental Services available within the UK may help to make dental care more accessible and acceptable to those with disabilities and could be a factor in the lower decay rates noted. It is also possible that the low treatment need of this patient group may be due to special care dentistry (SCD) being officially acknowledged as a dental speciality in the UK in 2008. Since the introduction of SCD, teaching programmes have been implemented to train specialists across the UK. The General Dental Council (GDC) have stated that education in SCD should be included within the undergraduate curriculum to ensure that newly qualified dentists have an awareness and understanding of the needs of this patient group.²³ All of these factors are likely to have improved the knowledge, attitude and skills required to treat patients with intellectual disabilities, helping to reduce the barriers in accessing and accepting dental care.

It is surprising that there is no data available on the oral health of those with disabilities since the speciality was created. Without comparable baseline data, it is difficult to fully assess the impact that SCD has had on the dental health of those with intellectual and other disabilities. This data could act as a useful baseline on which to monitor and review the dental health of this population within the UK.

Strengths and limitations

There are some limitations of this study which need to be considered. Firstly, as this is a sample of convenience, the results are not fully representative of the population who have a learning disability. Those who compete in the Special Olympics tend to be in good physical health with less severe disabilities.²⁴ It is likely that they also have access to increased support, as families need to endorse their participation in the games. Additionally, those who attended for dental screening are likely to be cooperative and potentially more able to accept routine treatment, introducing the potential for selection bias. Data was not collected in relation to other disabilities or co-morbidities which could influence the athletes' oral health. Answers to certain questions were self-reported and therefore some responses may not give a true representation of individual experiences. Despite this, the SOSS protocol is widely accepted within the literature and used throughout the world for collecting information on oral health in those with intellectual disabilities. This allows for direct comparisons between countries to be drawn, and the data can thus be utilised as a public health tool to

advocate for investment in services to improve dental health internationally as per the Special Olympics Healthy Athletes objectives.²⁵

It is not possible to make any valid comparisons between the NHS adult dental health survey²³ and this screening, as no further breakdown of data was available to us from the secondary anonymised data. This may be a useful area to explore for future studies, with data requests being made for breakdowns of age, however, this would mean the data would not be comparable to other SOSS screenings. Similarly, data on the oral health of elite athletes is not comparable as these studies involved thorough examinations in a dental clinic setting²⁶ and tend to focus on dental service provision rather than oral health status.^{27,28}

All screeners followed the Special Olympics standardised screening protocol and completed a short pictorial calibration exam in accordance with the CDC protocol. Although the screening parameters are well-defined and clear, no intra or inter examiner evaluations were conducted, and it is acknowledged, therefore, that the reliability of the screening may be less consistent.

Conclusion

Overall, the oral health of athletes competing in the GB National Games in Sheffield 2017 was better than the dental health noted at most Special Olympic events around the world. Although the UK has a recognised speciality in special care dentistry, there is surprisingly little data published on the oral health of individuals with learning disabilities within the UK. Ultimately, these results provide valuable baseline data to monitor and review the oral health status of Special Olympic athletes within the UK and in comparison to Special Olympic athletes worldwide.

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