Oral Health - An important target for public policy?

Luke Mclean
Fifth Year Medicine (Undergraduate)
Monash University

Luke is in his final year of medicine at Monash University. He has a keen interest in public, indigenous and refugee health.

Introduction

A healthy mouth is something we take for granted. We use our mouths to speak, to eat and to socialise without pain or significant embarrassment. Yet when oral disorders develop the impacts can extend well beyond the domains of speech, chewing, and swallowing to sleep, productivity, self-esteem and consequently quality of life. Despite the significant improvements made in oral health on a national scale over the last 20 years, there are still persistently high levels of oral disease and disability among Australians. This is most evident among Aboriginal and Torres Strait Islander peoples. This paper aims to review current medical literature concerning the overlap between oral health and Indigenous health outcomes and whether it may represent an important target for public health policy.

Methodology

A literature review was performed through a search of The Cochrane Library, Google Scholar and Ovid Medline as well as government databases such as the Australian Institute of Health and Welfare. The terms used in the searches included: 'Indigenous health', 'Aboriginal and Torres Strait Islanders', 'oral health', 'dental caries', 'cardiovascular disease' and 'education'. Limits were also set to include only studies published in the English Language and to papers published between 1995 and 2013.

Results

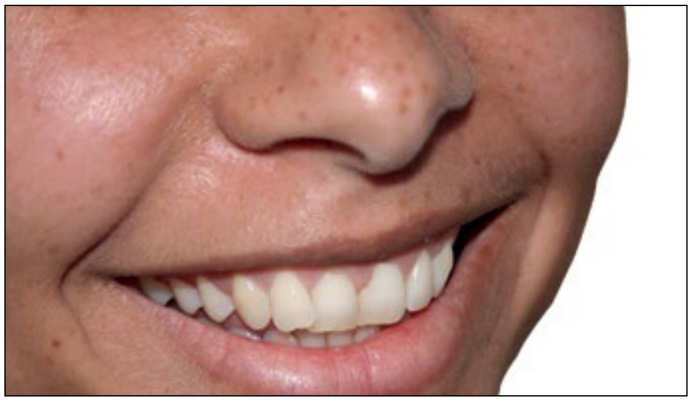
Searches using combinations of the above keywords yielded more than 100 results. Article titles and abstracts were analysed for relevance to the research question and in particular any reference to Indigenous health. Specific key word limits such as 'education' and 'Indigenous health' were used to restrict the yield. Relevant articles were collated from the individual searches and bibliographies were searched for any additional points of interest. This process yielded the 17 papers reviewed for this paper.

Discussion

Indigenous Health

In 2004-2008 the age-standardised death rate for Indigenous people was 1.8 times that of the non-Indigenous population; a representation of just one aspect of the ongoing issue of Indigenous disadvantage in Australia. [1] In terms of the domain of oral health there is also a wide discrepancy between both population groups. However, current literature suggests that, in the past, Indigenous Australians actually enjoyed better oral health than those who were non-Indigenous. [2] Historically, throughout the 19th and 20th centuries caries was considered to be a "disease of affluence" [3] whereas today it could potentially be a better "indicator of deprivation." [4] Foods rich in fermentable carbohydrates are plentiful in Indigenous communities today and so is dental decay. [3] The current Indigenous health situation provides the perfect example of how a non-Western society can be detrimentally impacted upon by the introduction of Western lifestyle [5] and whilst it is not possible to discuss every aspect of this complex issue, the importance of oral health in these communities is something that requires further consideration.

The risk factors for poor oral health are the same whether someone is Indigenous or not, yet there is a disparity between the standard of oral health of both groups. According to the World Health Organisation (WHO) oral health is "being free of chronic mouth and facial pain…and



disorders that affect the mouth and oral cavity." [6] The 'Oral health of Aboriginal and Torres Strait Islander children' report, published by the Australian Institute of Health and Welfare, found that a higher percentage of Aboriginal and Torres Strait Islanders had experienced dental caries than other Australian children aged between four and 14 years. [7] The report further stated that children aged less than five years had almost one and a half times the rate of hospitalization for dental care when compared to their non-Indigenous counterparts. [7] A rising trend was also demonstrated in the prevalence of caries among Indigenous children, particularly in the deciduous dentition. [7] In extrapolating the causes of these inequalities it is important to consider current structural and social circumstances. These social determinants of health include aspects like socioeconomic status, transport and access, racism and housing and with the recognition of these inequalities being embedded in "a history of conflict and dispossession, loss of traditional roles…and passive welfare" a more accurate snapshot of the complicated Indigenous situation can be established. [8]

In order to best understand the issues of Indigenous health it is also important to understand how Indigenous people themselves conceptualise health. The traditional Indigenous notion of health is holistic and encompasses everything from a person's life, body and environment to relationships, community and law; [3] a significant overlap with the social determinants model mentioned above. Whilst following a reductionist approach to medical care may be helpful in treating and managing disease, alone it is inadequate in addressing health disadvantage at a population level where a more holistic method of interpretation is required. The relationship between oral health and one's systemic health illustrates an important area where population-focused medicine could potentially cause a reduction in rates of morbidity and mortality across multiple medical domains. Current medical research has, for example, confirmed an association exists between cardiovascular disease and periodontal disease. [9] A large retrospective cohort study performed by Morrison and colleagues (1999) reported an association between poor dental health and an increase in the incidence of fatal coronary heart disease. [10] The relationship was assessed using Poisson regression and results were adjusted for age, sex, diabetes status, serum total cholesterol, smoking and hypertensive status. [10] Rate ratios of 2.15 (95% confidence interval (CI): 1.25-3.72) and 1.90 (95% CI: 1.17-3.10) were observed in the gingivitis and edentulous status groups respectively and supported a positive association with fatal coronary heart disease. [10] A study by Joshipura and colleagues (2003), looking at 41,380 men who were free

of cardiovascular disease and diabetes mellitus at baseline, suggested that periodontal disease and fewer teeth may also be associated with an increased risk of stroke. [11] During the follow up period, 349 cases of ischaemic stroke were reported, and men who had 24 or less teeth at baseline were at a higher risk of stroke than those with at least 25 teeth (hazard ratio: 1.57; 95% CI: 1.24-1.98). Furthermore, the addition of dietary factors to the model only changed the hazard ratios slightly. [11] Similar relationships have been established in linking oral infection to diabetes mellitus, low birth weight babies and disorders like otitis media and delayed growth. [3] The fact that the area of oral health has been identified as a potential risk factor for so many medical conditions highlights its importance as a target in population health.

The role of education

WHO defines health as "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity." [6] Whilst "population" is the "total number of people or things in a given place." [12] So essentially, putting these two terms together there is an orientation towards "preventing disease, prolonging life and promoting health through organised efforts and informed choices" among whole groups rather than individuals. [12] Many of the oral health problems faced by these communities have overlapping risk factors with wider general health conditions [3] and whilst this may be a reflection of the huge amount of work that is to be done it may also be viewed as a golden opportunity, to bring positive change through the many domains of health. Improving oral health through a campaign against alcohol and tobacco will not only have positive ramifications for oral health but its effects may also be seen in the areas of general health and wellbeing. The promotion of better oral hygiene through healthier eating may also have positive developments in the rates of obesity and type two diabetes mellitus.

It is also important to mention the role of education in achieving these goals, as this tool is often the key to someone gaining the power and knowledge to change their life. Education to create awareness on how dental hygiene can improve all domains of life is important in empowering people from a population perspective. Previous studies looking at the oral health of Indigenous Australians in Port Augusta, South Australia, have revealed associations between low oral health literacy scores and self-reported oral health outcomes. [13-15] It is studies like these that have prompted the need for targeted interventions that use tailored communication and training techniques to improve oral health literacy; however, there remain few interventions actually targeting oral health literacy in Indigenous populations. [16]

Conclusion

Indigenous health is a complex and often controversial topic and there is much debate as to what actually needs to be done to address the huge gap. Oral health is an important field of health care that has associations with many systemic conditions and thus may provide an appropriate target for effective public health policy. Perhaps a fault in our current health care system is that the dental and medical care fields have evolved quite separately and thus many people may habitually fail to understand how a simple cavity can be linked to the rest of their being. [17] Even in the Medicare system today there are no provisions for any preventative oral health services; with the exception for low income earners being entitled to concessions for public dental treatment through the public hospital system. [3] Oral health is an integral aspect of general health and thus should be an important public health goal; especially in Indigenous communities where the high prevalence of oral disease could be prevented through population-level interventions.

Conflict of interest

None declared.

Correspondence

L Mclean: lsmcl2@student.monash.edu

References

[1] Thomson N, MacRae A, Brankovich J, Burns J, Catto M, Gray C et al. Overview of Australian Indigenous health status 2011. Perth: Australian Indigenous HealthInfoNet; 2012.
[2] Harford J, Spencer J, Roberts-Thomson K. Oral health, In: The health of Indigenous Australians, N. Thomson (Ed.). South Melbourne: Oxford university press; 2003. p.313-338.
[3] Shearer M and Jamieson L. Indigenous Australians and Oral Health, Oral Health Care - Prosthodontics, Periodontology, Biology, Research and Systemic Conditions [monograph on Internet]. n/a: InTech; 2012 [cited 2012 Jun 13]. Available from: http://www.intechopen.com/books/oral-health-care-prosthodontics-periodontology-biology-research-and-systemic-conditions/indigenous-australians-and-oral-health
[4] Williams S, Jamieson L, MacRae A, & Gray C. Review of Indigenous oral health [monograph on Internet]. Australian Indigenous HealthInfoNet; 2011 [cited 2012 Jun 13]. Available from: http://www.healthinfonet.ecu.edu.au/uploads/docs/oral_health_review_2011.pdf
[5] Irvine J, Kirov E, Thomson, N. The Health of Indigenous Australians. Melbourne: Oxford University Press; 2003.
[6] World Health Organisation. Oral Health: Fact sheet No. 318 [homepage on Internet]; 2007 [cited 2012 Jun 13]. Available from: http://www.who.int/mediacentre/factsheets/fs318/en/index.html
[7] Australian Institute of Health and Welfare, Dental Statistics and Research Unit: Jamieson LM, Armfield JM, Roberts-Thomson KF. Oral health of Aboriginal and Torres Strait Islander children. Canberra: Australian Institute of Health and Welfare (Dental Statistics and Research Series No. 35); 2007. AIHW cat. No. DEN 167.
[8] Banks G. Overcoming indigenous disadvantage in Australia. Address to the second OECD world forum on statistics, knowledge and policy, measuring and fostering the progress of societies. Measuring and fostering the progress of societies; 27-30 Jun 2007. Istanbul, Turkey.
[9] Demmer RT, Desvarieux M. Periodontal infections and cardiovascular disease. J Am Dent Assoc. 2008 Mar;139(3):252.
[10] Morrison HI, Ellison LF, Taylor GW. Periodontal disease and risk of fatal coronary heart and cerebrovascular diseases. J Cardiovasc Risk 1999;6(1):7-11.
[11] Joshipura KJ, Hung HC, Rimm EB, Willett WC, Ascherio A. Periodontal disease, tooth loss, and incidence of ischemic stroke. Stroke 2003;34(1):47-52.
[12] Queensland Health. Understanding Population Health [monograph on Internet]. Queensland: Queensland Health; [cited 2012 Jun 10]. Available from: http://www.health.qld.gov.au/phcareers/documents/background_paper.pdf
[13] Jamieson LM, Parker EJ, Richards L. Using qualitative methodology to inform an Indigneous owned oral health promotion initiative. Health Prom Int 2008; 23:52-59.
[14] Williams SD, Parker EJ, Jamieson LM. Oral health-related quality of life among rural-dwelling Indigenous Australians. Aust Dent J 2010; 55:170-176.
[15] Parker EJ, Jamieson LM. Associations between Indigenous Australian oral health literacy and self-reported oral health outcomes. BMC Oral Health 2010; 10:3.
[16] Parker EJ, Misan G, Chong A, Mills H, Roberts-Thomson K, Horowitz A et al. An oral health literacy intervention for Indigenous adults in a rural setting in Australia. BMC Public Health 2012; 12:461.
[17] Widdop, F. Crossing divides: an ADRF perspective [monograph on Internet]. Australian Dental Association. Australia: Australian Dental Association; 2005 [cited 2012 Jun 13]. Available from: http://www.ada.org.au/app_cmslib/media/lib/0702/m47474_v1_crossingdividesanadrfperspective.pdf